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=> fil wpiX
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FILE LAST UPDATED:      23 OCT 2008   <20081023/UP>
MOST RECENT UPDATE:     200867       <200867/DW>
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and 20061231/UPIC, 20070601/UPIC, 20071001/UPIC, 20071130/UPIC,
20080401/UPIC, 20080701/UPIC and 20081001/UPIC.
ECLA reclassifications to mid August and US national classification
mid September 2008 have also been loaded. Update dates 20080401,
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df

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=> d que 150
L6      QUE ABB=ON PLU=ON ION(2A)EXCHANG?
L8      QUE ABB=ON PLU=ON CU OR COPPER
L9      QUE ABB=ON PLU=ON (ZN OR ZINC)(A)(SULFATE OR SULPHATE)
        OR ZNSO4
L15     QUE ABB=ON PLU=ON CHLORIDE OR CL
L19     QUE ABB=ON PLU=ON REMOV? OR SEPARAT?
L42     3752 SEA FILE=WPIX ABB=ON PLU=ON (TREAT? OR PRETREAT?)(3A)L6

L43     10 SEA FILE=WPIX ABB=ON PLU=ON L42 AND L9
L45     QUE ABB=ON PLU=ON REMOV? OR SEPARAT?
L46     6 SEA FILE=WPIX ABB=ON PLU=ON L43 AND L45
L47     15854 SEA FILE=WPIX ABB=ON PLU=ON L19(3A)(L8 OR L15)
L48     109 SEA FILE=WPIX ABB=ON PLU=ON L47 AND L9
L49     9 SEA FILE=WPIX ABB=ON PLU=ON L48 AND L6
L50     14 SEA FILE=WPIX ABB=ON PLU=ON (L46 OR L49) AND (PY<=2004
        OR PRY<=2004 OR AY<=2004)

=> d 150 ifull 1-14

L50 ANSWER 1 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN
ACCESSION NUMBER: 2005-356241 [36] WPIX
DOC. NO. CPI: C2005-110326 [36]
TITLE: Copper removal method from

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concentrated chloride containing  
zinc sulfate solution, involves  
using silica-based ion exchanger  
or other solid separation material  
M25

DERWENT CLASS:

INVENTOR:

PATENT ASSIGNEE:

JYRAELAE M; LAHTINEN M; LEHTINEN L; VUOKKO M  
(OUTO-C) OUTOKUMPU OY; (OUTO-C) OUTOKUMPU  
TECHNOLOGY OY; (LEHT-I) LEHTINEN L  
106

COUNTRY COUNT:

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005045078	A1	20050519	(200536)*	EN	32[5]	
FI 2003001615	A	20050508	(200545)	FI		
FI 117246	B1	20060815	(200655)	FI		
US 20070048203	A1	20070301	(200718)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005045078 A1		WO 2004-FI629	20041022
FI 2003001615 A		FI 2003-1615	20031107
FI 117246 B1		FI 2003-1615	20031107
US 20070048203 A1		WO 2004-FI629	20041022
US 20070048203 A1		US 2006-577678	20060428

FILING DETAILS:

PATENT NO	KIND	PATENT NO
FI 117246	B1 Previous Publ	FI 2003001615 A

PRIORITY APPLN. INFO: FI 2003-1615

20031107

INT. PATENT CLASSIF.:

IPC ORIGINAL:

C22B0015-00 [I,A]; C22B0015-00 [I,C]; C22B0019-00  
[I,A]; C22B0019-00 [I,C]; C01G0053-00 [I,A];  
C01G0053-00 [I,C]

IPC RECLASSIF.:

C22B [I,S]; C22B0015-00 [I,A]; C22B0015-00 [I,C];  
C22B0019-00 [I,A]; C22B0019-00 [I,C]; C22B0003-00  
[I,C]; C22B0003-24 [I,A]; C22B0003-42 [I,A]  
C22B0003-24; C22B0003-42; C22B0019-26  
423/138.000

ECLA:

USCLASS NCLM:

BASIC ABSTRACT:

WO 2005045078 A1 UPAB: 20051222

NOVELTY - Concentrated zinc sulfate solution containing chloride, used as raw  
solution for electrolytic preparation of zinc, is routed to copper removal ,  
using silica-based ion exchanger or other selective solid separation material  
containing polymeric amine as functional group. The copper removed solution is  
then routed to next stage of solution purification.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for method for removal  
of copper and

chloride from chloride containing concentrated zinc sulfate solution.

USE - To remove copper and

chloride from chloride containing concentrated zinc sulfate solution.

ADVANTAGE - Copper and chloride are selectively removed from the zinc sulfate  
solution, without using toxic precipitation reagents like arsenic and antimony  
oxide.

DESCRIPTION OF DRAWINGS - The figure shows the flowchart of copper removal from zinc sulfate solution.

FILE SEGMENT: CPI  
MANUAL CODE: CPI: M25-B03; M25-G08

L50 ANSWER 2 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN  
ACCESSION NUMBER: 2005-242177 [25] WPIX  
DOC. NO. CPI: C2005-077221 [25]  
TITLE: Preparation of cellulosic shaped articles by the viscose method, useful for making e.g. filters or textiles with antibacterial properties, with incorporation of ion exchanger from a dispersion, added to the spinning solution  
DERWENT CLASS: A11; A32; F01; P21; Q65  
INVENTOR: SCHMIDTBAUER J; SCHOBESBERGER H  
PATENT ASSIGNEE: (CHES-C) CHEMIEFASER LENZING AG; (CHES-C) LENZING AG; (SCHM-I) SCHMIDTBAUER J; (SCHO-I) SCHOBESBERGER H  
COUNTRY COUNT: 107

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005024103	A1	20050317	(200525)*	DE	25	[01]
AT 2003001402	A	20051015	(200571)	DE		
EP 1660705	A1	20060531	(200636)	DE		
AT 413818	B	20060415	(200644)	DE		
US 20060246285	A1	20061102	(200672)	EN		
JP 2007504369	W	20070301	(200718)	JA	20	
CN 1878893	A	20061213	(200730)	ZH		
IN 2006DN01181	P1	20070713	(200768)	EN		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005024103 A1		WO 2004-AT297	20040901
AT 2003001402 A		AT 2003-1402	20030905
AT 413818 B		AT 2003-1402	20030905
CN 1878893 A		CN 2004-80032756	
20040901			
EP 1660705 A1		EP 2004-761020	
20040901			
EP 1660705 A1		WO 2004-AT297	20040901
US 20060246285 A1 Cont of		WO 2004-AT297	20040901
JP 2007504369 W		WO 2004-AT297	20040901
IN 2006DN01181 P1		WO 2004-AT297	20040901
JP 2007504369 W		JP 2006-525095	
20040901			
US 20060246285 A1		US 2006-368102	20060303
IN 2006DN01181 P1		IN 2006-DN1181	20060306

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AT 413818	B	Previous Publ
EP 1660705	A1	Based on
		AT 2003001402
		WO 2005024103

JP 2007504369 W Based on WO 2005024103 A

PRIORITY APPLN. INFO: AT 2603-1402 20030905

INT. PATENT CLASSIF.:

MAIN: C08B009-00; D01F002-10  
IPC ORIGINAL: A41B0011-00 [I,A]; A41B0011-00 [I,C]; A41B0017-00 [I,A]; A41B0017-00 [I,C]; A41D0013-00 [I,A]; A41D0013-00 [I,C]; A41D0013-12 [I,A]; A41D0013-12 [I,C]; B01D0039-14 [I,A]; B01D0039-14 [I,C]; B01D0039-18 [I,A]; B01D0039-18 [I,C]; B01J0039-22 [I,A]; B01J0041-16 [I,A]; D01F0002-00 [I,A]; D01F0002-00 [I,C]; D01F0002-00 [I,C]; D01F0002-02 [I,A]; D01F0002-10 [I,A]; D01F0006-04 [I,A]; D01F0006-04 [I,C]; D02G0003-00 [I,A]; D02G0003-00 [I,C]; D02G0003-02 [I,A]; D02G0003-02 [I,C]; D03D0015-00 [I,C]; D03D0015-00 [I,A]; D03D0015-00 [I,C]; D04B0021-00 [I,A]; D04B0021-00 [I,C]; D04H0001-42 [I,A]; D04H0001-42 [I,C]; D04H0013-00 [I,A]; D04H0013-00 [I,C]; F16J0015-18 [I,C]; F16J0015-20 [I,A]  
IPC RECLASSIF.: D01F0002-00 [I,C]; D01F0002-10 [I,A]  
ECLA: B01J0039-22; B01J0039-26; B01J0041-16; B01J0041-20; B01J0047-12; B01J0047-12B; D01F0002-10  
ICO: M02F0001:42B; M02F0001:42D  
USCLASS NCLM: 428/365.000  
NCLS: 264/187.000; 264/203.000; 428/364.000; 442/181.000; 442/304.000; 442/327.000

## BASIC ABSTRACT:

WO 2005024103 A1 UPAB: 20071024

NOVELTY - Method for preparing cellulosic shaped articles (A) by a viscose method, in which (A) contain a material (I) with ion-exchange properties, and (I), and/or its precursor, is added to the spinning solution. The new feature is that (I) is a dispersion of particles with maximum size 20 micron or less. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) (A) prepared by the new method; (2) fiber mixture containing a cellulosic fiber prepared by the new method; and

(3) textile articles, especially yarn, fabric, knitted goods and/or fleece, that contain a fiber, or mixture, prepared by the new method.

USE - (A), also fiber mixtures and textiles made from them, are useful as liquid filters; in purification of waste water and solutions; for separation of heavy metals; for desalination; as antibacterial air filters and other materials (e.g. starting materials for medical textiles); for analysis (e.g. as substrates for preparative or catalytic use, as in chromatographic separation); and/or for making products with antibacterial properties (e.g. underwear, sports clothing, socks, hospital textiles, bed linen, domestic cloths, massgae cloths and hygienic fleeces) (all claimed).

ADVANTAGE - Adding (A) as a dispersion (rather than as a solution) results in a yield of incorporation, during spinning, of 99% or more. (A) have good ion-exchange kinetics (allowing effective treatment of dilute solutions); capacity up to 40% greater than that of conventional resin-based exchangers; provide higher flow-through rates; have good resistance to pressure; are compact and easily regenerated; reduce consumption of chemicals; can be disposed of without causing pollution; and, when loaded with metals, have antibacterial activity.

## TECHNOLOGY FOCUS:

POLYMERS - Preferred Process: (I) is used as an aqueous dispersion of maximum particle size 7 micron or less, and (I) has cation- or anion-exchange properties. The dispersion contains 1-60, preferably 20-50, weight% (I) (dry basis; active substance). (A) is a fiber, film, foam and/or particle. Preferred Materials: (I) comprises a matrix of crosslinked polystyrene (or copolymer of

styrene and methacrylic acid), polyacrylate, polyacrylamide, phenol/formaldehyde or cellulose, preferably used at 0.1-100, best 10-50, weight% on the viscose cellulose (dry basis). Suitable anion-exchange groups are sulfonic, carboxylic, (amino)phosphonic or iminodiacetic acid, thiourea, thiol, chelate-forming and/or amphoteric groups, optionally treated with a metal ion (most especially converted to zinc form before spinning and/or in the regeneration bath). Suitable anion-exchange groups are primary or secondary amino and/or quaternary ammonium. Preferred fiber mixtures contain 1-99, best 20-70, % (A).

## EXTENSION ABSTRACT:

EXAMPLE - The strongly acidic cation exchanger Lewatit MP S100 was comminuted to form an aqueous dispersion (X) of maximum particle size 4.9 micron. This was mixed with a 8.65% aqueous viscose solution (S) at weight ratio (X):(S) of 1:6. The resulting mixture was spun through 80 micron nozzles into a bath containing sulfuric acid, sodium sulfate and zinc sulfate, at 48degreesC, followed by stretching of the fibers formed in a second bath (sulfuric acid; 92degreesC) by 75%. The stretched fibers were cut into 40 mm sections, treated with acidified water, treated to remove sulfur and optionally bleached, washed and brightened, then dried at 70degreesC. The finished product had titer 4.4 dtex; dry strength 12 cN/tex (at 24% extension) and total ion-exchange capacity (DIN 54403) 2.2 meq/g.

FILE SEGMENT:

CPI; GMP

MANUAL CODE:

CPI: A03-A05; A03-A05A; A09-A; A12-M; A12-S05K;  
F01-D06A; F03-C02B

L50 ANSWER 3 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN  
ACCESSION NUMBER: 2004-041532 [04] WPIX  
DOC. NO. CPI: C2004-016899 [04]  
TITLE: Recovering cyanide from feed material containing  
cyanide and copper comprises use of strong base  
anion exchange resin on which copper and cyanide  
are adsorbed and eluting resin with free cyanide  
ion  
DERWENT CLASS: J01; M25  
INVENTOR: FLEMING C A; THORPE J A  
PATENT ASSIGNEE: (HANN-N) HANNAH TECHNOLOGIES LP  
COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20030205533	A1	20031106	(200404)*	EN	28[1]	
US 6919030	B2	20050719	(200547)	EN		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20030205533	A1 Provisional	US 1999-157307P	
19991001			
US 20030205533	A1 CIP of	US 2000-651553	
20000830			
US 20030205533	A1	US 2003-373066	
20030224			

PRIORITY APPLN. INFO: US 2003-373066 20030224  
US 1999-157307P 19991001

US 2008-051553

200800830

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: B01J0041-00 [I,C]; B01J0041-04 [I,A]

ECLA: B01J0041-04B

USCLASS NCLM: 210/665.000

NCLS: 210/670.000; 210/684.000; 210/688.000; 423/024.000

## BASIC ABSTRACT:

US 20030205533 A1 UPAB: 20060120

NOVELTY - Cyanide is recovered from a feed material containing cyanide and copper by using a strong base anion exchange resin on which copper and cyanide are adsorbed and eluting the resin with free cyanide ions.

DETAILED DESCRIPTION - Recovering cyanide (CN) from a feed material containing CN and copper (Cu) comprises: (a) contacting the feed material with a strong base anion exchange resin where copper and CN from the feed material are adsorbed into the resin;

(b) contacting the resulting resin with an eluant solution containing free CN ions to elute Cu and CN from the resin, the amount of Cu removed being approximately equivalent to the amount of copper adsorbed onto the resin in step (A);

(c) separating the eluted resin from the eluting solution or eluate from step (B);

(d) acidifying the eluate from step (B) to precipitate copper;

(e) separating the acidified solution from the precipitate in step (D) and alkalinizing directly or after concentration the separated solution containing hydrogen CN (HCN); (f) contacting the eluted resin from step (B) with an acid to condition the resin and remove additional CN while leaving most of the Cu in the resin phase;

(g) converting the HCN solution formed in step (F) to CN ions, directly or after concentration of the HCN solution, by the addition of alkali; and

(h) returning the conditioned resin from step (F) to step (A) above.

USE - Used for recovering CN from feed material containing CN and Cu.

ADVANTAGE - The process provides for the elution and recovery of Cu and CN from anion exchange resins using CN ion (CN-) as the eluant to give eluates of less than 3.5:1 mole of CN/mole of Cu. It is also capable of producing concentrated Cu bearing eluates of over 50 g of Cu/L of eluate. Such strong eluate solutions promote efficient, economic recovery of Cu and CN. DESCRIPTION OF DRAWINGS - The figure is a flow diagram illustrating CN recovery from solutions or pulps containing Cu by ion exchange using CN eluant of the inventive process.

## TECHNOLOGY FOCUS:

CHEMICAL ENGINEERING - Preferred Process: The Cu precipitated in step (D) is optionally discarded before or after CN treatment or recovery from the precipitates. The precipitate from step (D) is smelted for recovery of copper. The Cu in step (D) is precipitated as CuCN, Cu thiocyanate (CuSCN) or Cu sulfide (Cu<sub>2</sub>S). The CuCN or CuSCN is converted to Cu<sub>2</sub>S prior to smelting. The CN is recovered from copper CN as the result of its conversion to Cu<sub>2</sub>S. The Cu in step (D) is precipitated as CuCN or CuSCN which is then used as the feed to a Cu electrowinning or electroplating process with optional recovery of CN. A portion of the Cu precipitated in step (D) is recycled to the feed material to reduce the CN:Cu molar ratio in the feed material or on the resin to aid in the loading of free CN on the resin. The Cu precipitated in step (D) is diluted with gypsum and subjected to selective precipitation in which part of the gypsum is precipitated with little or no Cu product present. The Cu precipitate from step (D) is diluted with gypsum and the gypsum/Cu precipitate subjected to flotation to separate the Cu compound from the gypsum. The resin from step (A) is treated with a solution of ferric sulfate, ferric chloride or ferric nitrate for the removal of excess SCN. The loading of the resin in step (A) is carried out so that the resin exchange sites

are loaded with metal CN complexes or SCN ion thus increasing the loading of CN and Cu on the resin. The resin is completely loaded with metal CN complexes so that most of the SCN ion in the feed material is transported through step (A) and remains in the treated feed material. The Cu concentration on the resin is intentionally increased by allowing Cu in the resin phase leaving the second elution step (F) to increase above ca. 1 mole of Cu/L of the resin. The calcium (Ca) is excluded from the eluant in step (B) and the eluant contains sodium based compounds to prevent the formation of Ca sulfate (gypsum) when sulfuric acid is present in the elution steps (B) and (F). The hydrochloric acid resulting from the reaction of Ca chloride with sulfuric acid is used in precipitation step (D). The HCN removal from the acidified solution in step (E) is incomplete and the residual HCN is alkalized for use in elution step (B). The conditioned resin from step (F) is first washed to recover residual HCN prior to being returned to step (A) for loading. Compounds of zinc (Zn) or Cu which complex with CN are added to the feed material to reduce the free CN concentration or CN:Cu ratio to facilitate loading of CN on the strong base anion exchange resin.

## EXTENSION ABSTRACT:

EXAMPLE - A solution, saturated with gypsum and containing 400 mg/L Cu, 750 mg/L CN (CN:Cu mole ratio 4.6:1), 30 mg/L Zn and 350 mg/L SCN was prepared by dissolving 8.92 g sodium CN 99%, 4.51 g CuCN, 1.06 g Zn sulfate heptahydrate and 4.69 g potassium SCN in water to 8 L. The pH was adjusted to ca. 11 with lime. A head sample was taken for analysis of CN(T), Cu, Zn, Ca, and SCN. Feed 1 solution analyzed 641 mg/L CN(T), 403 mg/L Cu, 29.2 mg/L Zn, 595 mg/L Ca and 315 mg/L SCN.

FILE SEGMENT: CPI

MANUAL CODE: CPI: J01-D04; M25-B03; M25-G08

L50 ANSWER 4 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN

ACCESSION NUMBER: 2001-074032 [09] WPIX

CROSS REFERENCE: 2005-226647

DOC. NO. CPI: C2001-020960 [09]

TITLE: Negative ion-exchanging film, includes specified styrene repeat units having alkylene quat. amine groups and/or amino groups attached to ring

DERWENT CLASS: A91; D15; J01; J04; K07; L03

INVENTOR: KUBOTA H; KUDO K; TAKASAKI N; WATANABE J

PATENT ASSIGNEE: (MITU-C) MITSUBISHI CHEM CORP

COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2000212306	A	20000802	(200109)*	JA	15	[4]
<--						
JP 3942758	B2	20070711	(200747)	JA	21	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2000212306 A		JP 1999-13228	19990121
JP 3942758 B2		JP 1999-13228	19990121

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 3942758	B2 Previous Publ	JP 2000212306 A

PRIORITY APPLN. INFO: JP 1999-13228 19990121

INT. PATENT CLASSIF.:

IPC ORIGINAL:

B01J0041-00 [I,C]; B01J0041-14 [I,A]; B01J0047-00 [I,C]; B01J0047-12 [I,A]; C02F0001-469 [I,A]; C02F0001-469 [I,C]; C08F0012-00 [I,C]; C08F0012-28 [I,A]; C08J0005-20 [I,C]; C08J0005-22 [I,A]; B01D0053-34 [I,A]; B01D0053-34 [I,C]; B01D0053-77 [I,A]; B01D0053-77 [I,C]; B01J0041-00 [I,C]; B01J0041-14 [I,A]; B01J0047-00 [I,C]; B01J0047-12 [I,A]; C02F0001-469 [I,A]; C02F0001-469 [I,C]; C08F0012-00 [I,C]; C08F0012-28 [I,A]; C08J0005-20 [I,C]; C08J0005-22 [I,A]

IPC RECLASSIF.:

BASIC ABSTRACT:

JP 2000212306 A UPAB: 20050901

NOVELTY - A negative ion-exchanging film comprises polymer containing repeating unit (1-1) and/or (2-2) as constitutional components.

DETAILED DESCRIPTION - A negative ion-exchanging film comprises polymer containing repeating unit of formula (1) and/or (2) as constitutional components.

A = 3-8C straight chain, branched alkylene or 4-8C alkoxyethylene;  
R1, R2, R3 = H, up to 6C alkyl or alkanol. INDEPENDENT CLAIMS are also included for an anion-exchanging film which is prepared by laminating the anion-exchanging film defined above and a positive ion-exchanging film; an anion-exchanging film which contains continuous phase consisting of cation-exchanger and a continuous phase consisting of the anion-exchanger, containing repeating unit (1) and/or (2) as constitutional components; an anion-exchanging film which contains a continuous phase consisting of porous carrier material and a continuous phase which comprises anion-exchanging film containing repeating unit (1) and/or (2) as constitutional components; an anion-exchanging film which is prepared by laminating an anion-exchanging film, consisting of polymer containing repeating unit (1) as constitutional component, with anion-exchanging film, consisting of polymer containing repeating unit (2) as constitutional component; an anion-exchanging film which is a crosslinking anion-exchanger of formula (3) containing 5-99 mol % of constituting unit, P and 0.1-50 mol % of constituting unit, Q; preparation of the anion-exchanging film which comprises polymerizing solution containing monomer of formula (4) in the presence of a polymerization initiator into film form and, if necessary, converting into anion-exchanging group; electrodialysis method and its equipment; and an electrical deionizing equipment. Z = Cl, Br, I, OH, tosyl, primary to tertiary amine or ammonium group-NR1R2R3;

R1, R2, R3 = H, up to 6C alkyl or alkanol.

USE - The anion-exchanging film is suitable for desalting, treating, filtering, ion-exchanging, condensing, separating, reacting and purifying aqueous solution containing ionic substances, ion charge fine particles, coloring material, radiation material, polymer electrolyte, amino acid and/or protein. The anion-exchanging film is suitable for electrodialysis, electrical deionizing method and treating discharged gas. The anion-exchanging film is useful for producing sea water-condensed salt, brackish water, low-chlorine ion caustic soda solution, condensing of Glauber's salt, Glauber's salt- zinc sulfate, sodium sulfite, a desalted whey-protein, salt-decreased soy bean source, purification of sugar solution, electric fermentation, removal of inorganic acids and inorganic salts from amino acids, condensation, removal of metal ion, removal of radiative ion, producing of acid and alkali, double decomposition reaction, bath controlling of electrodeposition coating bath, decoloral deionizing, desulfurizing from discharged gas, barrier film for



battery, ion-exchanging film for fuel battery, ion-exchanging filtering material, synthetic catalyst, deodorizing antibacterial film.

ADVANTAGE - The anion-exchanging film has good thermoresistance, chemical stability, anti-oxidizing properties and holds the anion-exchanging function even under high temperatures, in oxidizing atmosphere, high-concentrated solution. The anion-exchanging film only slightly elutes from resin, has good reaction speed, low content of reinforcing agent and good flexibility.

## EXTENSION ABSTRACT:

EXAMPLE - Mixture of 4-bromobutylstyrene(70 g), divinylbenzene (20 g), dioctyl phthalate(10 g) and benzoyl peroxide(1.0 g) was bubbled in nitrogen gas atmosphere to remove the dissolved oxygen. The solution was applied on a netting made from high-density polyethylene, covered with polyester film as a releasing agent, and finally polymerized at 80 degreesC for 8 hours. The obtained polymer film was dipped in methanol solution (300 g) of aqueous 30 % trimethylamine solution (100 g) and reacted at 40 degreesC for 5 hours to give anion-exchanging film having a thickness of 150 micron. The anion-exchanging film had neutral salt-decomposing capacity of 3.1 meq/g, moisture content of 26 %, electric resistance of 3.8 ohm-cm2 and a transference number of 0.96.

## FILE SEGMENT:

CPI

## MANUAL CODE:

CPI: A04-C; A11-B09A2; A12-M03; D04-A01G; J01-D04;  
J04-E04; K07-A03; L03-E01; L03-E01D; L03-E04

L50 ANSWER 5 OF 14

WPIX COPYRIGHT 2008

THOMSON REUTERS on STN

ACCESSION NUMBER:

1998-130468 [12] WPIX

CROSS REFERENCE:

2002-257167

DOC. NO. CPI:

C1998-043095 [12]

DOC. NO. NON-CPI:

N1998-102970 [12]

TITLE:

Filter sheet for removing ionic impurities from  
photoresists - comprising self-supporting fibrous  
matrix containing uniformly distributed particles  
of a filter aid and an ion  
exchange resin

DERWENT CLASS:

A88; G06; J01; L03; U11

INVENTOR:

HOU K C; OSTREICHER E A; SALE R D

PATENT ASSIGNEE:

(CUNO-N) CUNO INC; (HOUK-I) HOU K C; (OSTR-I)  
OSTREICHER E A; (SALE-I) SALE R D

COUNTRY COUNT:

24

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9804348	A1	19980205	(199812)*	EN	34[2]	
<--						
AU 9739008	A	19980220	(199828)	EN		
<--						
EP 915736	A1	19990519	(199924)	EN		
<--						
US 6103122	A	20000815	(200041)	EN		
<--						
AU 725939	B	20001026	(200059)	EN		
<--						
JP 2000516133	W	20001205	(200067)	JA	32	
<--						
MX 9810252	A1	19991001	(200103)	ES		
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KR 2000016329	A	20000325	(200104)	KO	[2]	
<--						
US 20030047507	A1	20030313	(200321)	EN		
<--						

October 24, 2008

10/577,678

10

EP 915736	B1 20031015 (200368)	EN
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DE 69725584	E 20031120 (200401)	DE
<---		
US 6733677	B2 20040511 (200431)	EN
<---		
JP 3765060	B2 20060412 (200626)	JA 17

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9804348 A1		WO 1997-US13412	
19970730			
US 6103122 A	Provisional	US 1996-22793P	
19960730			
US 20030047507 A1	Provisional	US 1996-22793P	
19960730			
US 6733677 B2	Provisional	US 1996-22793P	
19960730			
AU 9739008 A		AU 1997-39008 19970730	
AU 725939 B		AU 1997-39008 19970730	
DE 69725584 E		DE 1997-625584	
19970730			
EP 915736 A1		EP 1997-936305	
19970730			
EP 915736 B1		EP 1997-936305	
19970730			
DE 69725584 E		EP 1997-936305	
19970730			
US 6103122 A		US 1997-903101	
19970730			
US 20030047507 A1	Div Ex	US 1997-903101	
19970730			
US 6733677 B2	Div Ex	US 1997-903101	
19970730			
EP 915736 A1		WO 1997-US13412	
19970730			
JP 2000516133 W		WO 1997-US13412	
19970730			
KR 2000016329 A		WO 1997-US13412	
19970730			
EP 915736 B1		WO 1997-US13412	
19970730			
DE 69725584 E		WO 1997-US13412	
19970730			
JP 2000516133 W		JP 1998-509130	
19970730			
KR 2000016329 A		KF 1998-709902	
19981201			
MX 9810252 A1		MX 1998-10252 19981204	
US 20030047507 A1	Div Ex	US 2000-603596	
20000626			
US 6733677 B2	Div Ex	US 2000-603596	
20000626			
US 20030047507 A1		US 2002-137006	
20020502			
US 6733677 B2		US 2002-137006	
20020502			
JP 3765060 B2		WO 1997-US13412	

19970730  
JP 3765060 B2  
19970730

JP 1998-569130

# FILING DETAILS:

PATENT NO	KIND		PATENT NO	
AU 725939	B	Previous Publ	AU 9739008	A
DE 69725584	E	Based on	EP 915736	A
US 20030047507	A1	Div ex	US 6103122	A
US 6733677	B2	Div ex	US 6103122	A
US 6733677	B2	Div ex	US 6576139	B
AU 9739008	A	Based on	WO 9804348	A
EP 915736	A1	Based on	WO 9804348	A
AU 725939	B	Based on	WO 9804348	A
JP 2000516133	W	Based on	WO 9804348	A
KR 2000016329	A	Based on	WO 9804348	A
EP 915736	B1	Based on	WO 9804348	A
DE 69725584	E	Based on	WO 9804348	A
JP 3765060	B2	Previous Publ	JP 2000516133	W
JP 3765060	B2	Based on	WO 9804348	A

PRIORITY APPLN. INFO: US 1996-22793P 19960730  
 WO 1997-US13412 19970730  
 US 1997-903101 19970730  
 US 2000-603596 20000626  
 US 2002-137006 20020502

## INT. PATENT CLASSIF.:

MAIN: B01D039-14; B01J047-00  
 IPC ORIGINAL: B01J0020-22 [I,C]; B01J0020-26 [I,A]; B01J0039-00 [I,C]; B01J0039-20 [I,A]  
 IPC RECLASSIF.: A61K0038-00 [N,A]; A61K0038-00 [N,C]; B01D0015-04 [I,A]; B01D0015-04 [I,C]; B01D0039-00 [I,A]; B01D0039-00 [I,C]; B01D0039-14 [I,A]; B01D0039-14 [I,C]; B01D0039-18 [I,A]; B01D0039-18 [I,C]; B01J0020-22 [I,C]; B01J0020-26 [I,A]; B01J0020-28 [I,A]; B01J0020-28 [I,C]; B01J0039-00 [I,C]; B01J0039-20 [I,A]; B01J0047-00 [I,A]; B01J0047-00 [I,C]; B01J0047-12 [I,A]  
 ECLA: B01J0020-28; B01J0047-00M; B01J0047-12D  
 ICO: K61K0038:00; M07K0207:00  
 USCLASS NCLM: 210/502.100  
 NCLS: 162/164.200; 162/181.100; 162/181.600; 162/181.800; 210/504.000; 210/505.000; 210/508.000; 210/681.000; 210/686.000; 210/688.000

## BASIC ABSTRACT:

WO 1998004348 A1 UPAB: 20050520 Filter sheet comprises a self-supporting fibrous matrix, in which are immobilised particles of a filter aid and ion-exchange resin particles, both uniformly distributed throughout the cross-section of the matrix. Also claimed is a process for removing ionic impurities from an organic liquid comprising passing the liquid through a filter sheet as above.  
 USE - For removing sodium, potassium, iron, copper, chromium, nickel, molybdenum or zinc ions, or a mixture, from a photoresist composition (claimed).  
 ADVANTAGE - The filter sheet has a higher ion exchange capacity than the ion-exchange resin alone. Ionic impurities can be reduced to low parts per billion (ppb) in photoresist compositions as the sheet contains very low ppb levels of extractable metal impurities. Sheets also containing an anionic exchange resin

can remove halide, phosphate, nitrate, chromate, borate and other materials that can act as dopants in integrated circuits. Sheets containing a chelating exchange resin can remove heavy metal ions.

#### DOCUMENTATION ABSTRACT:

WO1998004348

Filter sheet comprises a self-supporting fibrous matrix, in which are immobilised particles of a filter aid and ion-exchange resin particles, both uniformly distributed throughout the cross-section of the matrix.

Also claimed is a process for removing ionic impurities from an organic liquid comprising passing the liquid through a filter sheet as above.

#### USE

For removing sodium, potassium, iron, copper, chromium, nickel, molybdenum or zinc ions, or a mixture, from a photoresist composition (claimed).

#### ADVANTAGE

The filter sheet has a higher ion exchange capacity than the ion-exchange resin alone. Ionic impurities can be reduced to low parts per billion (ppb) in photoresist compositions as the sheet contains very low ppb levels of extractable metal impurities. Sheets also containing an anionic exchange resin can remove halide, phosphate, nitrate, chromate, borate and other materials that can act as dopants in integrated circuits. Sheets containing a chelating exchange resin can remove heavy metal ions.

#### EXAMPLE

Filter sheets were made by preparing an aqueous slurry of fibres comprising normal and highly refined 'MAC Sulphite' (RTM) cellulose pulp, 'PrCH' (RTM: sulphonated styrene-divinyl benzene copolymer) ion-exchange resin, acid-washed 'Dicalite' 215 (RTM: DE) filter aid and 'Kymene' 557H (RTM: PAE) binder resin. Sheets were cast from a slurry containing 1-2.5% solids using a vacuum felting sheet formation process. The cast sheets were aid-dried by a standard method. The sheets were prepared containing (1) 35 weight% normal pulp, 30 weight% refined pulp, 25 weight% DE, 10 weight% exchange resin and 0.5 weight% binder resin; (2) 65 weight% of normal pulp, no refined pulp and the other ingredients as above; and (3) 90 weight% normal pulp and 10 weight% exchange resin. The exchange resin had a zinc binding capacity of 154 mg/g.

The binding capacity for the normal and refined cellulose pulp and the acid-washed DE was <1 mg/g for each. 47 mm diameter sheets were tested with 2,000 ml of zinc sulphate solution containing 38 ppm of Zn at 0.5 g/min./ft.<sup>2</sup>. The pad weight was 23.8, 22.4 and 25.6 g resp. and the AF DP was 24, 1.1 and 0.9 in. water. The average zinc binding capacity of the sheets was 13.9, 9.4 and 8.6 mg/g. Based on a maximum theoretical capacity of 15.4 mg/g, the efficiency was 90%, 62% and 56% resp. Extractable metals in filter sheets of diameter 47 mm comprising 34.1 weight% normal pulp, 24.5 weight% refined pulp, 30.3 weight% acid-washed DE, 11.5 weight% exchange resin and 0.5 weight% binder were measured by flushing with 75 ml of ethyl lactate or PGMEA.

For both solvents, the content of metals extracted was below the atomic absorption spectroscopy detection limit for sodium (5.0 ppb), iron (5.0 ppb), calcium (1.0 ppb), chromium (2.0 ppb), aluminium (7.0 ppb), potassium (1.0 ppb) and copper (1.0 ppb). The figure shows a comparison of the iron-binding capacity of 'Zeta Plus' (RTM) filters sheets, which contain no ion-

exchange resin (squares, triangles), and the sheets above used for the metal content test (crosses, diamonds). The sheets were tested with a solution containing 61 ppm of iron as the sulphate. The example sheet had a binding capacity 10 times that of the prior art filter sheet. (SL)

#### PREFERRED MATERIALS

The exchange resin is a cationic exchange resin, or a mixture of cationic and anionic exchange resins. The cationic resin is selected from sulphonated phenol-formaldehyde condensates, sulphonated phenol-benzaldehyde condensates, sulphonated styrene-divinyl benzene copolymers (preferred) and sulphonated methacrylic acid-divinyl benzene copolymer, and it contains H<sup>+</sup> counter ions. The filter aid is selected from diatomaceous earth (DE), magnesia, perlite, talc, colloidal silica, polymeric particulates, activated carbon, molecular sieves, clay and mixtures. Acid-washed DE is preferred. The filter sheet may further comprise a binder resin, preferably a polyamido-polyamine epichlorohydrin resin (PAE), or a chelating exchange resin.

The fibrous matrix comprises fibres of polyacrylonitrile, nylon, rayon, poly(vinyl chloride), cellulose or cellulose acetate. Cellulose fibres with an alpha-cellulose content of more than 90% produced by the sulphite process are preferred. The cellulose fibres comprise a major amount of normal cellulose pulp having a Canadian Standard Freeness (CSF) of +400 to +800 ml and a minor amount of highly refined pulp having a CSF of +100 to -1,000 ml.

#### PREFERRED FILTER SHEET

The filter sheet contains sodium, iron, calcium, chromium, aluminium, potassium and copper extractables not exceeding 20 ppb for each metal, measured by flushing 75 ml of ethyl lactate or propylene glycol monomethyl ether acetate (PGMEA) solvent through a filter sheet of diameter 47 mm. The sheet contains 5-65 (preferably 5-35) weight% of the exchange resin, 5-40 (preferably 15-40) weight% of the particulate filter aid, 0.05-2.0 (preferably 0.1-0.5) weight% of the binder resin and 15-80 (preferably 40-70) weight% of the fibrous matrix. An acid-rinsed (to remove alkali metal counter ions) chelating exchange resin is added at 5-65 (preferably 5-15) weight%.

FILE SEGMENT: CPI; EPI  
MANUAL CODE: CPI: A12-H04; A12-M; G06-D04; G06-D06; G06-E;  
J01-H; L03-H04E2; L04-C06B  
EPI: U11-A06A

L50 ANSWER 6 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN  
ACCESSION NUMBER: 1996-117955 [13] WPIX  
DOC. NO. CPI: C1996-037426 [13]  
TITLE: Method of printing fibrous cloth - by ink jet  
printing cloth with overlapping blue and cyan inks,  
heat-treating and washing to give good cyan colour  
DERWENT CLASS: A87; E24; F06; P75  
INVENTOR: HARUTA M; KOIKE S; SHIROTA K; SUZUKI M; TAKAIDE A;  
TAKAIDE F; YAMAMOTO T; YOSHIHIRA A  
PATENT ASSIGNEE: (CANO-C) CANON KK  
COUNTRY COUNT: 9

#### PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
EP 693586	A2	19960124	(199613)*	EN	29[6]
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JP 08035181	A	19960206 (199615)	JA	15[0]
<---				
US 5888253	A	19990330 (199920)	EN	
<---				
JP 3176223	B2	20010611 (200135)	JA	15
<---				
EP 693586	B1	20030507 (200333)	EN	
<---				
DE 69530639	E	20030612 (200346)	DE	
<---				

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 693586 A2		EP 1995-111429	
19950720			
JP 08035181 A		JP 1994-169436	
19940721			
JP 3176223 B2		JP 1994-169436	
19940721			
US 5888253 A Cont of		US 1995-502347	
19950714			
DE 69530639 E		DE 1995-69530639	
19950720			
DE 69530639 E		EP 1995-111429	
19950720			
US 5888253 A		US 1997-910720	
19970913			

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69530639 E	Based on	EP 693586 A
JP 3176223 B2	Previous Publ	JP 08035181 A

PRIORITY APPLN. INFO: JP 1994-169436

19940721

INT. PATENT CLASSIF.:

IPC RECLASSIF.:

C09D0011-00 [I,A]; C09D0011-00 [I,C]; D06P0001-16 [N,A]; D06P0001-16 [N,C]; D06P0005-00 [I,A]; D06P0005-00 [I,C]; D06P0005-20 [I,A]; D06P0005-20 [I,C]; D06P0005-30 [I,A]; D06P0005-30 [I,C]; D06P0005-00B; D06P0005-20T2; D06P0005-30 N06P0001:16

ECLA:

ICO:

BASIC ABSTRACT:

EP 693586 A2 UPAB: 20050511 Printing a fibrous cloth with a disperse dye by an ink jet system using cyan and blue inks in a weight ratio of cyan to blue dye of 10:1-100:1 comprises (a) imparting the inks to a cloth so that they at least partially overlap; (b) heat treating the cloth; and (c) washing the cloth.

Also claimed are (i) a printed textile obtd. by the above method; (ii) a processed article obtd. from the printed textile; and (iii) an ink for ink jet printing a textile.

ADVANTAGE - Good cyan colour is obtd., allowing a wide range of colour reproduction in green expression obtd. by a colour mixture with yellow ink.

DOCUMENTATION ABSTRACT:

EP693586

Printing a fibrous cloth with a disperse dye by an ink jet system using cyan and blue inks in a weight ratio of cyan to blue dye of 10:1-100:1 comprises

(a) imparting the inks to a cloth so that they at least partially overlap;

(b) heat treating the cloth; and

(c) washing the cloth.

Also claimed are

(i) a printed textile obtd. by the above method;

(ii) a processed article obtd. from the printed textile; and

(iii) an ink for ink jet printing a textile.

#### ADVANTAGE

Good cyan colour is obtd., allowing a wide range of colour reproduction in green expression obtd. by a colour mixture with yellow ink.

#### EXAMPLE

A polyester cloth was dipped in an aqueous solution of urea (10%), dehydrated by squeezing and dried. A disperse dye solution was prepared by mixing 20 pts. beta-naphthalene sulphonic acid formaldehyde condensate, 55 pts. ion exchanged water and 10 pts. diethylene glycol. The mixture was then added separately to 15 pts. Cl disperse blue 60 and 15 pts. Cl disperse Blue 183 obtd. in disperse dye (I) and disperse dye (II) resp..

A first ink (A) was prepared by mixing 40 pts. disperse dye (I) with 24 pts. thiodiglycol, 11 pts. diethylene glycol, 0.0005 pts. sodium metasilicate, 0.001 iron sulphate, 0.0003 pts. nickel chloride, 0.0003 pts. zinc sulphate and 0.002 pts. calcium chloride and 25 pts. ion-exchanged water.

A second ink (B) was prepared by mixing 30 pts. disperse dye (II), 15 pts. thiodiglycol, 10 pts. diethylene glycol, 5 pts. tetraethylene glycol dimethylether, 0.0005 pts. sodium metasilicate, 0.001 pts. iron sulphate, 0.0003 pts. nickel dichloride, 0.0003 pts. zinc sulphate, 0.002 pts. calcium chloride and 40 pts. ion-exchanged water.

The inks were printed on the cloth and fixed by high temperature steaming for 8 mins. at 180°C. The cloth was then water-and reduction washed.

The colour development stability was good irrespective of ink jetting order and a dense cyan colour was obtd.. (M0)

#### PREFERRED METHOD

Heat treatment is by high temperature steaming or thermosol method.

The ink jet system is a discharging ink which uses thermal energy the cloth contains a water soluble metal salt a water soluble polymer, urea, thiourea and/or a surfactant in an amount of 0.01-20 weight% based on the total dry weight of the cloth.

#### PREFERRED INKS

The cyan ink is at least one of Cl disperse blue 60, 87, 77:1, 143, 176, 185 and 198.

The blue ink is at least one of Cl disperse blue 56, 73, 79, 79:1, 113, 128, 148, 154, 158, 165, 165:1, 165:2, 183, 197, 201, 214, 224, 225, 257, 266, 267, 287, 358 and 368.

FILE SEGMENT:

CPI; GMPI

MANUAL CODE:

CPI: A08-E01; A11-C04A; A12-S05Q; E22-C01; E22-C04; E23-B; F03-F14; F03-F18; F03-F31

L50 ANSWER 7 OF 14 WPIX COPYRIGHT 2008

THOMSON REUTERS on STN

ACCESSION NUMBER: 1993-139576 [17] WPIX

DOC. NO. CPI: C1993-062060 [21]

TITLE: Xylulose preparation on industrial scale - by contacting *Alcaligenes* sp., capable of producing L-xylulose, with aqueous xylitol-containing solution and culturing

DERWENT CLASS: D16; D17

INVENTOR: IKUMORI T; TSUZAKI K

PATENT ASSIGNEE: (HAYB-C) HAYASHIBARA SEIBUTSU KAGAKU

COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 05076379	A	19930330	(199317)*	JA	5	[0]
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JP 3082104	B2	20000828	(200044)	JA	5	
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## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 05076379 A		JP 1991-315554	
19910924			
JP 3082104 B2		JP 1991-315554	
19910924			

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 3082104 B2	Previous Publ	JP 05076379 A

PRIORITY APPLN. INFO: JP 1991-315554 19910924

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: C12N0001-20 [I,A]; C12N0001-20 [I,C]; C12P0019-00 [I,C]; C12P0019-02 [I,A]; C12R0001-05 [N,A]

## BASIC ABSTRACT:

JP 05076379 A UPAB: 20060107 *Alcaligenes* sp. bacterium that can produce L-xylulose from xylitol is contacted with xylitol-containing aqueous solution to produce L-xylulose. The bacterium is pref. *Alcaligenes denitrificans* subsp. xyloxydans 701A (FERM BP-2735).

USE/ADVANTAGE - L-xylulose can be produced in high yield from cheap sugar alcohol. Suitable for industrial production - In an example, each loop of *Alcaligenes denitrificans* subsp. xyloxydans 701A was inoculated to medium ((NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> 0.26 w/v%, KH<sub>2</sub>PO<sub>4</sub> 0.24 w/v%, K<sub>2</sub>HPO<sub>4</sub> 0.56 w/v%, MgSO<sub>4</sub>·7H<sub>2</sub>O 0.01 w/v%, yeast extract 0.05 w/v%, L-sorbose 2 w/v%, deionized water residue, total 100 ml x 20) in 500 ml x 20 shaking flasks, and shaking cultured at 30 deg.C for 2 days. After culture, cells were collected by centrifugation, obtd. cells (ca. 20 g) were mixed with xylitol (2 w/v%) containing 0.05M phosphate buffer (pH 7.0; 1 l), charged into 500 ml volume shaking flask dividedly, and shake at 30 deg.C for 2 days. Next, cells were removed by centrifugation. To the supernatant, 25 w/v% ZnSO<sub>4</sub> (1/10 vol) was added to adjust pH 7.6, and centrifuged. The supernatant was decoloured with active carbon, treated with H type ion exchange resin and OH type ion exchange resin in order, then, concentrate in vacuo; clear syrup (concentration 90%) was obtd. Yield ca. 75%.

FILE SEGMENT: CPI

MANUAL CODE: CPI: D05-C08; D06-H



October 24, 2008

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ACCESSION NUMBER: 1987-336371 [48] WPIX  
 CROSS REFERENCE: 1987-348780  
 DOC. NO. CPI: C1987-143527 [21]  
 TITLE: Zinc sulphate electrolyte  
 purificn. - by treating in electrodialysis unit  
 using alternating monovalent cation and anion  
 permselective exchange membranes  
 J01; J03; M11  
 DERWENT CLASS: BALL D L; BOATENG D; BOATENG D A D  
 INVENTOR: (CMSC-C) COMINCO LTD  
 PATENT ASSIGNEE: 20  
 COUNTRY COUNT:

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 247713	A	19871202	(198748)*	EN	14[0]	
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NO 8701362	A	19871116	(198751)	NO		
<--						
US 4715939	A	19871229	(198802)	EN	10	
<--						
FI 8701696	A	19871023	(198806)	FI		
<--						
JP 62297484	A	19871224	(198806)	JA		
<--						
BR 8701889	A	19880202	(198810)	PT		
<--						
ZA 8702477	A	19880224	(198821)	EN		
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PT 84727	A	19880421	(198822)	PT		
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CN 87102881	A	19880120	(198909)	ZH		
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CA 1258654	A	19890822	(198937)	EN		
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EP 247713	B	19900926	(199039)	EN		
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DE 3765180	G	19901031	(199045)	DE		
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ES 2017715	B	19910301	(199115)	ES		
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SU 1837950	A3	19930830	(199519)	RU	9[0]	
<--						

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 247713 A		EP 1987-302369	
19870406			
CA 1258654 A		CA 1986-507254	
19860422			
ZA 8702477 A		ZA 1987-2477 19870407	
SU 1837950 A3		SU 1987-4202444	
19870421			
US 4715939 A		US 1987-41026 19870421	
JP 62297484 A		JP 1987-97644 19870422	

PRIORITY APPLN. INFO: CA 1986-507254

19860422

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: B01D0061-42 [I,C]; B01D0061-44 [I,A]; B01D0061-50 [I,A]; B01D0061-54 [I,A]; B01D0061-58 [I,A]; B01D0061-58 [I,C]; B01D0065-00 [I,C]; B01D0065-06 [I,A]; C01G0009-00 [I,C]; C01G0009-06 [I,A]; C25C0001-00 [I,C]; C25C0001-16 [I,A]; B01D0013-02; C01G0009-06

## ECLA:

## BASIC ABSTRACT:

EP 247713 A UPAB: 20050426 Unit (I) has anode and cathode compartments (II) containing a corresp. anode and cathode kept at a current density of 10-500 Amps/sq.m. (I) has several alternating monovalent cation and anion permselective exchange membranes defining alternating diluate and concentrate cells (III). Electrolyte at pH below 5.5 containing as impurities at least one of  $\text{Ti}^{+}$ ,  $\text{Na}^{+}$ ,  $\text{K}^{+}$  plus at least one of  $\text{Cl}^{-}$ ,  $\text{F}^{-}$  is fed at 0-60 deg.C to the unit (I) at a rate to maintain turbulent flow in the cells (III). Compartments (II) are rinsed with circulating rinse solution e.g.,  $\text{H}_2\text{SO}_4$ ,  $\text{H}_2\text{O}$  or  $\text{Na}_2\text{SO}_4$  solution of pH 0-4.  $\text{ZnSO}_4$  electrolyte depleted of  $\text{Ti}^{+}$  etc. and  $\text{Cl}^{-}$ , etc. is removed as prod. from the diluate cells. Pref. cation membrane is strongly acidic with a membrane matrix of styrene divinyl benzene copolymer on a PVC base with sulphonic acid radicals as active groups e.g. Selemion CMV (RTM). Pref. anion membrane is strongly basic with quat. ammonium active gps. with the same matrix, e.g. Selemion ASV (RTM).

## FILE SEGMENT:

MANUAL CODE: CPI  
CPI: J03-D; M11-B06

L50 ANSWER 9 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN

ACCESSION NUMBER: 1986-076016 [12] WPIX

DOC. NO. CPI: C1986-032475 [21]

TITLE: Chloride removal from sulphate solns. - by ion exchange with amino methyl anion-exchange resins

DERWENT CLASS: A91; E32; M28

INVENTOR: FEISTEL L; GERISCH S; HAUPTMANN R; HOFFMANN H; SABROWSKI E; SCHWACHULA G; ZIEGENBALG S

PATENT ASSIGNEE: (FARF-C) CHEM BITTERFELD-WOLFEN AG; (MAPI-C) VEB MANSFELD-KOMB PIECK W

COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DD 229875	A	19851120	(198612)*	DE	4[0]	
<--						
DD 229875	B5	19931209	(199402)	DE		
<--						

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DD 229875 A		DD 1984-271085	
19841219			
DD 229875 B5		DD 1984-271085	
19841219			

PRIORITY APPLN. INFO: DD 1984-271085 19841219

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: C01G0009-00 [I,C]; C01G0009-06 [I,A]; C25C0001-00 [I,C]; C25C0001-16 [I,A]

## BASIC ABSTRACT:

DD 229875 A UPAB: 20050424 Removal of Cl ions from aqueous sulphate (especially ZnSO<sub>4</sub>) solns. is effected using a weakly basic anion exchanger with functional gps. of formula QCH<sub>2</sub>NH<sub>2</sub>R<sub>2</sub> or a strongly basic anion exchanger with functional gps. of formula QCH<sub>2</sub>NH<sub>2</sub>R<sub>2</sub>R<sub>3</sub>, where Q is a polymer matrix and R<sub>1</sub>-R<sub>3</sub> are 2-6C alkyl or benzyl, provided that R<sub>1</sub>-R<sub>3</sub> contain a total of 4-15 alkyl C atoms when they are all alkyl or at least 2 alkyl C atoms when one or more are benzyl.

USE/ADVANTAGE - Low chloride ZnSO<sub>4</sub> solns. are useful for the electrolytic production of Zn. The process avoids use of expensive chemicals, e.g. oxidising agents (US4156711), and is simpler to operate than known precipitation or extraction processes (DE2526174 and 2136557).

## FILE SEGMENT:

CPI

## MANUAL CODE:

CPI: A10-E03; A10-E19; A12-M03; E31-B03D; E35-C; M25-B03

L50 ANSWER 10 OF 14

WPIX COPYRIGHT 2008 THOMSON REUTERS on STN

ACCESSION NUMBER:

1983-711797 [29] WPIX

DOC. NO. CPI:

C1983-066929 [21]

TITLE:

Zinc sulphate solution  
purification in electrolytic zinc plant - by  
copper removal then cementation  
with zinc dust

DERWENT CLASS:

E32; M28

PATENT ASSIGNEE:

(ELEC-N) ELECTROLYTIC ZINC CO AUSTRALASIA

COUNTRY COUNT:

1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA PG	MAIN IPC
AU 8290737	A 19830602	(198329)*	EN 49	
<--				

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
AU 8290737 A		AU 1981-1655	19811123
AU 8290737 A		AU 1982-96737	19821118

INT. PATENT CLASSIF.:

IPC RECLASSIF.: C01G0009-00 [I,C]; C01G0009-06 [I,A]

## BASIC ABSTRACT:

AU 8290737 A UPAB: 20050421 Zinc sulphate solns. from an electrolytic zinc plant are purified to remove Cu, Cd, Co and Ni impurities by (a) copper removal by cementation with Zn, Fe or steel, precipitation as a copper sulphide or a basic salt, solvent extraction or ion exchange, and (b) addition of 1-6 g/l Zn dust in the presence of Cd and added Sb to ppt. Cd, Co and Ni at 65 deg. C to the solution b.pt. at atmos. pressure and separation of the resulting cementate. In the absence of Cu, the presence of Cd and a small amount of Sb enhances Co removal with Zn dust, the stability of the resulting cementate and the ability to leach selectively the Cd and Zn from the cementate.

## FILE SEGMENT:

CPI

## MANUAL CODE:

CPI: E35-C; M25-B; M25-G27; M28-A

L50 ANSWER 11 OF 14

WPIX COPYRIGHT 2008 THOMSON REUTERS on STN

ACCESSION NUMBER:

1980-09957C [06] WPIX

TITLE:

Recovery of electrolytic zinc plating solution - by  
adsorbing metal ions using cation exchange resin,

regenerating resin with sulphuric acid and recycling

DERWENT CLASS: M11  
INVENTOR: MIZUMA M; NAGASHIMA T; TSUCHIYA K  
PATENT ASSIGNEE: (YAWA-C) NIPPON STEEL CORP  
COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
JP 54161547	A	19791221	(198006)*	JA	
<--					
JP 57051479	B	19821102	(198247)	JA	
<--					

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 54161547 A		JP 1978-69782	19780612

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: C02F0001-42 [I,A]; C02F0001-42 [I,C]; C25D0021-00 [I,C]; C25D0021-22 [I,A]

## BASIC ABSTRACT:

JP 54161547 A UPAB: 20050418 In an electrolytic zinc plating line having an electrolytic zinc plating process using a Zn sulphate bath and a rinsing process, the recovery method of the plating bath is that metal ions in the waste water from the rinsing process are adsorbed by a cation exchange resin the cation exchange resin is regenerated with aq. H2SO4 solution, and the regeneration solution is used as a supplemental solution for the electrolytic Zn plating bath. Pref. the electrolytic Zn plating solution is continuously treated with a chelating ion exchange resin which has a selective adsorption property for iron ion to remove the iron ion from the electrolytic bath. Zn is recovered from the waste water from the rinsing process in a high purity, and it is returned to the electrolytic Zn plating bath.

FILE SEGMENT: CPI  
MANUAL CODE: CPI: M11-A04; M11-B06

L50 ANSWER 12 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS ON STN  
ACCESSION NUMBER: 1977-65045Y [37] WPIX  
TITLE: Treating electrolysis solutions to remove ferric ions - especially from copper sulphate solution by liquid-liquid extraction

DERWENT CLASS: E19; M11; X25  
INVENTOR: COTTON J W; CRONBERG A D; HARTLAGE J A  
PATENT ASSIGNEE: (ASHL-C) ASHLAND OIL INC; (SHER-N) SHEREX CHEM CO INC  
COUNTRY COUNT: 9

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA	PG	MAIN IPC
BE 854457	A	19770901	(197737)*	FR	
<--					
DE 2720997	A	19771117	(197747)	DE	
<--					
NL 7705152	A	19771114	(197748)	NL	

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<--
JP 52135876      A  19771114 (197801)  JA
<--
FI 7701299       A  19771230 (197804)  FI
<--
US 4067802       A  19780110 (197804)  EN
<--
ZA 7701083       A  19771130 (197808)  EN
<--
BR 7702335       A  19780509 (197821)  PT
<--
JP 53023256      B  19780713 (197832)  JA
<--
DE 2720997       B  19781116 (197847)  DE
<--
CA 1091448       A  19801215 (198103)  EN
<--

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## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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PRIORITY APPLN. INFO: US 1976-684645 19760510

INT. PATENT CLASSIF.:

IPC RECLASSIF.: B01D0011-04 [I,A]; B01D0011-04 [I,C]; C22B0003-00 [I,C]; C22B0003-40 [I,A]; C25C0001-00 [I,A]; C25C0001-00 [I,C]; C25C0001-12 [I,A]; C22B0003-00D2M4; C25C0001-00

ECLA:

USCLASS NCLM:

NCLS:

205/586.000

205/587.000; 205/594.000; 205/602.000; 210/638.000; 423/139.000

## BASIC ABSTRACT:

BE 854457 A UPAB: 20050417 Separation of ferric ion impurities from an electrolytic solution of Cu, Co, Ni or Zn sulphate by liquid-liquid ion exchange, comprises adjusting the acid content of the solution to 100-200 g H2SO4/l and then intimately contacting the acid solution with a phase stabilised water-immiscible organic solvent solution of a mono- or di-alkyl phosphoric acid and a metal chelating cpd. selected from 8-hydroxyquinolines substd. in the 7 position by long chain aliphatic hydrocarbyl gps. and an oil soluble 2-hydroxy benzophenone oxime the molar ratio of chelating agent to phosphoric acid cpd. being from 1:1 to 1:4. The process is used to purify metal electrodeposition baths in which ferric ions accumulate and adversely affect the electrolysis yield. The process has the advantage of being easily carried out in a closed system and is cheaper and less difficult than present methods.

FILE SEGMENT:

CPI; EPI

MANUAL CODE:

CPI: E05-G09C; E06-D02; E10-A18; M25-B; M28-A

October 24, 2008

10/577,678

22

ACCESSION NUMBER: 1971-79519S [50] WPIX  
 TITLE: Metal recovery - from ocean bed ores contg copper  
 cobalt - nickel and manganese and from sulphide  
 ores  
 DERWENT CLASS: E31; M25  
 PATENT ASSIGNEE: (DEEP-C) DEEPSEA VENTURES INC  
 COUNTRY COUNT: 5

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
NL 7107275	A		(197150)*	NL		
DE 2126222	A		(197203)	DE		
FR 2090300	A		(197214)	FR		
GB 1353344	A	19740415	(197420)	EN		
<--						
CA 951908	A	19740730	(197433)	EN		
<--						
NL 171823	B	19821216	(198301)	NL		
<--						

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
PRIORITY APPLN. INFO:	US 1972-310604	19721129	
	US 1970-40496	19700526	
	US 1970-40586	19700526	
	US 1972-247693	19720426	
	US 1972-309713	19721127	

## INT. PATENT CLASSIF.:

IPC RECLASSIF.: C22B0001-00 [I,C]; C22B0001-02 [I,A]; C22B0003-00  
 [I,A]; C22B0003-00 [I,C]; C22B0003-28 [I,A];  
 C22B0003-30 [I,A]; C22B0003-32 [I,A]; C22B0003-36  
 [I,A]; C22B0047-00 [I,A]; C22B0047-00 [I,C]

## ECLA:

C22B0001-02+IDT; C22B0003-00; C22B0003-00D2B2C;  
 C22B0003-00D2B2D; C22B0003-00D2B2G2C;  
 C22B0003-00D2H2B; C22B0047-00N1; C22B0047-00N4A1;  
 C22B0047-00N4B

## BASIC ABSTRACT:

NL 7107275 A UPAB: 20050413 Metals are recovered from ores obtained from the ocean bed by (a) mixing the ore with sulphide ore, (b) roasting the mixture so that iron sulphide is converted into iron oxide and the remaining sulphides are converted into sulphates, (c) extracting the roasted product with water to dissolve the soluble sulphates from the sulphide ores in the form of copper and zinc sulphates, and the soluble sulphates from the ocean bed ore in the form of sulphates of manganese, nickel, cobalt and copper, (d) separating the insoluble residues to produce an extract, (e) subjecting the extract to ion exchange with the help of a liquid ion exchanger, and (f) separating the desired metals by electrolysis.  
 Method enables Mn, Cu, Co and Ni to be recovered economically from ocean bed ores, and at the same time metals, can be recovered from sulphide ores, which cannot be processed by normal methods.

## FILE SEGMENT:

CPI

## MANUAL CODE:

CPI: E35-A; E35-S; E35-V; E35-W; M25-C; M25-G

L50 ANSWER 14 OF 14 WPIX COPYRIGHT 2008 THOMSON REUTERS on STN  
 ACCESSION NUMBER: 1968-03271Q [00] WPIX

October 24, 2008

10/577,678

23

TITLE: Recovering zinc sulphate in the  
production of rayon  
DERWENT CLASS: A00  
PATENT ASSIGNEE: (ORGC-C) ORGANO CO LTD & TOYO RAYON CO LTD  
COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND DATE	WEEK	LA PG	MAIN IPC
JP 43007424	B	(196800)*	JA	

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 43007424 B		JP 1960-30027	19600701

## BASIC ABSTRACT:

JP 68007424 B UPAB: 20050412 A solution contng. H2SO4 and ZnSO4, which is used in the production of rayon fibre, is treated with a strongly acidic cation exchange resin, and Zn ions are then removed from the ion exchange resin by treatment with Na2SO4. The effluent obtd. is recirculated to a 1st. rayon coagulation bath.  
The Na2SO4 solution used may be obtd. by dissolving Na2SO4 in the waste solution of a 2nd. rayon coagulation bath.

FILE SEGMENT: CPI  
MANUAL CODE: CPI: A03-A05; A11-B15; A12-M

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FILE COVERS 1907 - 24 Oct 2008 VOL 149 ISS 18  
FILE LAST UPDATED: 23 Oct 2008 (20081023/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que 152

L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON "ZINC SULFATE"/CN  
 L4 1 SEA FILE=REGISTRY ABB=ON PLU=ON COPPER/CN  
 L5 16329 SEA FILE=HCAPLUS ABB=ON PLU=ON L3  
 L6 QUE ABB=ON PLU=ON ION(2A)EXCHANG?  
 L7 577620 SEA FILE=HCAPLUS ABB=ON PLU=ON L4  
 L8 QUE ABB=ON PLU=ON CU OR COPPER  
 L9 QUE ABB=ON PLU=ON (ZN OR ZINC) (A) (SULFATE OR SULPHATE)  
 OR ZNSO4  
 L11 300 SEA FILE=HCAPLUS ABB=ON PLU=ON (L3 OR L9) (L) L6  
 L12 59 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND (L7 OR L8)  
 L13 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHLORIDE/CN  
 L14 71340 SEA FILE=HCAPLUS ABB=ON PLU=ON L13  
 L15 QUE ABB=ON PLU=ON CHLORIDE OR CL  
 L16 17 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND (L14 OR L15)  
 L19 QUE ABB=ON PLU=ON REMOV? OR SEPARAT?  
 L20 60111 SEA FILE=HCAPLUS ABB=ON PLU=ON L19(3A) (L8 OR L15)  
 L21 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND L11  
 L23 QUE ABB=ON PLU=ON (TREAT? OR PRETREAT? OR PROCESS? OR  
 PREPROCESS?)  
 L24 18394 SEA FILE=HCAPLUS ABB=ON PLU=ON L23(3A) L6  
 L25 57 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND (L5 OR L9)  
 L26 47 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND L11  
 L27 10522 SEA FILE=HCAPLUS ABB=ON PLU=ON (TREAT? OR PRETREAT?) (3A)  
 ) L6  
 L28 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND L27  
 L31 QUE ABB=ON PLU=ON WASTEWATER(2A) TREATMENT  
 L34 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 NOT L31  
 L35 QUE ABB=ON PLU=ON EXTRACT?/SC, SX  
 L36 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND L35  
 L37 7 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND L35  
 L38 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L21 AND L35  
 L39 9 SEA FILE=HCAPLUS ABB=ON PLU=ON ((L36 OR L37 OR L38))  
 NOT L31  
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 (PY<=2004 OR PRY<=2004 OR AY<=2004)  
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 L52 25 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 NOT L51

=> d l52 iall hitstr 1-25

L52 ANSWER 1 OF 25 HCAPLUS COPYRIGHT 2008 ACS ON STN  
 ACCESSION NUMBER: 2004:574657 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:382407  
 ENTRY DATE: Entered STN: 19 Jul 2004  
 TITLE: Kinetic studies of zinc extraction from sulfate  
 solutions with bis(2-Ethylhexyl)thiophosphoric  
 acid  
 AUTHOR(S): Reis, M. Teresa A.; Carvalho, Jorge  
 CORPORATE SOURCE: Department of Chemical Engineering, Instituto  
 Superior Tecnico, Lisbon, Port.  
 SOURCE: Separation Science and Technology (2004  
 ), 39(10), 2457-2475  
 CODEN: SSTDSD; ISSN: 0149-6395  
 PUBLISHER: Marcel Dekker, Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 CLASSIFICATION: 54-2 (Extractive Metallurgy)



## Section cross-reference(s): 60

## ABSTRACT:

The kinetics of ion-exchange zinc extraction from sulfate media with bis(2-ethylhexyl)thiophosphoric acid were investigated. A cell with a constant interfacial area and with vibrational mixing was used to measure the initial extraction and initial stripping rates under several operating conditions. The extraction process can be described by the reaction mechanism scheme proposed by L.A. Ajawin et al.(1983). The reaction rate consts. were evaluated by taking into account the non-ideality of the aqueous phase. The activity coeffs. of the ions in the  $\text{ZnSO}_4$ - $\text{H}_2\text{SO}_4$ - $\text{Na}_2\text{SO}_4$  aqueous system were calculated by applying the L.S. Pitzer model (1995). The thermodyn. kinetic consts. for the forward and backward reactions at 298 K were  $3.1 \times 10^{-5}$  m/s and  $1.0 \times 10^{-6}$  kmol-0.5m<sup>2.5</sup>/s. The ratio between these rate consts. agrees satisfactorily with the thermodyn. equilibrium constant obtained in a previous study.

SUPPL. TERM: zinc cation exchange extrn kinetics sulfate soln  
 INDEX TERM: Cation exchange  
 (zinc ion-exchange extraction from sulfate solns. with bis(2-Ethylhexyl)thiophosphoric acid)  
 INDEX TERM: 7440-66-6P, Zinc, preparation  
 ROLE: PEP (Physical, engineering or chemical process);  
 PUR (Purification or recovery); PYP (Physical process); PREP (Preparation); PROC (Process)  
 (zinc ion-exchange extraction from sulfate solns. with bis(2-Ethylhexyl)thiophosphoric acid)  
 INDEX TERM: 14808-79-8, Sulfate, processes 17618-27-8, Bis(2-Ethylhexyl)thiophosphoric acid  
 ROLE: PEP (Physical, engineering or chemical process);  
 PYP (Physical process); PROC (Process)  
 (zinc ion-exchange extraction from sulfate solns. with bis(2-Ethylhexyl)thiophosphoric acid)  
 REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD.  
 REFERENCE(S): (1) Ajawin, L; Chem Eng Res Des 1983, V61(1), P62 HCAPLUS  
 (2) Asai, S; J Chem Eng Jpn 1983, V16(6), P463 HCAPLUS  
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 (8) Hancil, V; Chem Eng J 1978, V16(1), P51 HCAPLUS  
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HCAPLUS  
(30) Wilke, C; AIChE J 1955, V1(2), P264

L52 ANSWER 2 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:247700 HCAPLUS Full-text

DOCUMENT NUMBER: 138:404580

ENTRY DATE: Entered STN: 01 Apr 2003

TITLE: Ion-exchange extraction in  
metallurgical processes of the  
nonferrous metals industry

AUTHOR(S): Gotfryd, Leszek; Steczkowski, Jozef;  
Anyszkiewicz, Krystyna; Kwarcinski, Mieczyslaw;  
Becker, Ksawery

CORPORATE SOURCE: Inst. Metali Niezelaznych, Gliwice, Pol.

SOURCE: Rudy i Metale Niezelazne (2002),  
47(12), 607-618

CODEN: RMNZA5; ISSN: 0035-9696

PUBLISHER: Wydawnictwo SIGMA-NOT

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Polish

CLASSIFICATION: 54-2 (Extractive Metallurgy)

ABSTRACT:

Research works carried out at the Institute of Non-Ferrous Metals in Gliwice related to practical aspects of solvent extraction of metals and the equipment used in investigations are described. The results of expts. with extractive recovery of Cd, Zn and Co from the solns. obtained after leaching industrial raw materials are presented. The possibility of automatic control of the extraction processes in the above cases is shown. The data obtained are preceded by a review covering essentials of solvent extraction of metals, historical outline of the development of this area of knowledge, main contemporary applications, and future trends with details on types of metal extractants and com. available extractive reagents.

SUPPL. TERM: solvent extn nonferrous metal industrial raw material  
leaching soln; review solvent exchange extn nonferrous  
metal extractant type app

INDEX TERM: Hydrocarbon oils  
ROLE: TEM (Technical or engineered material use); USES  
(Uses)  
(Escaid 120; ion-exchange extraction  
in metallurgical processes of nonferrous  
metals industry)

INDEX TERM: Solvents  
(in ion-exchange extraction in  
metallurgical processes of nonferrous  
metals industry)

INDEX TERM: Extractants  
Process automation  
Process control  
Solvent extraction  
(ion-exchange extraction in  
metallurgical processes of nonferrous  
metals industry)

INDEX TERM: Metals, preparation  
ROLE: PUR (Purification or recovery); PREP  
(Preparation)  
(non-ferrous; ion-exchange  
extraction in metallurgical processes of  
nonferrous metals industry)

INDEX TERM: Extraction apparatus  
(solvent extraction; ion-exchange  
extraction in metallurgical processes of  
nonferrous metals industry)

INDEX TERM: Kerosene  
ROLE: TEM (Technical or engineered material use); USES  
(Uses)  
(solvent, Escaid 110; ion-  
exchange extraction in metallurgical  
processes of nonferrous metals industry)

INDEX TERM: Aromatic hydrocarbons, uses  
ROLE: TEM (Technical or engineered material use); USES  
(Uses)  
(solvent; ion-exchange extraction in  
metallurgical processes of nonferrous  
metals industry)

INDEX TERM: 53906-40-4  
ROLE: PRP (Properties); RGT (Reagent); TEM (Technical  
or engineered material use); RACT (Reactant or  
reagent); USES (Uses)  
(Cyanex 471X extractant; ion-  
exchange extraction in metallurgical  
processes of nonferrous metals industry)

INDEX TERM: 298-07-7 2215-21-6  
ROLE: PRP (Properties); RGT (Reagent); TEM (Technical  
or engineered material use); RACT (Reactant or  
reagent); USES (Uses)  
(extractant; ion-exchange extraction  
in metallurgical processes of nonferrous  
metals industry)

INDEX TERM: 83411-71-6, Cyanex 272  
ROLE: RGT (Reagent); TEM (Technical or engineered  
material use); RACT (Reactant or reagent); USES (Uses)

(extractant; ion-exchange extraction in metallurgical processes of nonferrous metals industry)

INDEX TERM: 7646-85-7, Zinc chloride, processes  
7733-02-0, Zinc sulfate  
10124-36-4, Cadmium sulfate  
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(ion-exchange extraction in metallurgical processes of nonferrous metals industry)

INDEX TERM: 14826-66-5  
ROLE: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)  
(ion-exchange extraction in metallurgical processes of nonferrous metals industry)

INDEX TERM: 7440-43-9P, Cadmium, preparation 7440-48-4P, Cobalt, preparation 7440-66-6P, Zinc, preparation  
ROLE: PUR (Purification or recovery); PREP (Preparation)  
(ion-exchange extraction in metallurgical processes of nonferrous metals industry)

INDEX TERM: 7786-81-4, Nickel sulfate  
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(mixture with Co sulfate; ion-exchange extraction in metallurgical processes of nonferrous metals industry)

INDEX TERM: 10124-43-3, Cobalt sulfate  
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(mixture with Ni sulfate; ion-exchange extraction in metallurgical processes of nonferrous metals industry)

INDEX TERM: 126-73-8, TBP, uses  
ROLE: TEM (Technical or engineered material use); USES (Uses)  
(solvent; ion-exchange extraction in metallurgical processes of nonferrous metals industry)

IT 7733-02-0, Zinc sulfate  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(ion-exchange extraction in metallurgical processes of nonferrous metals industry)

RN 7733-02-0 HCAPLUS

CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



L52 ANSWER 3 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2001:531068 HCAPLUS Full-text  
 DOCUMENT NUMBER: 135:107721  
 ENTRY DATE: Entered STN: 24 Jul 2001  
 TITLE: Polymerization catalysts containing ion-exchange  
 layered silicates for olefin polymerization and  
 their manufacture  
 INVENTOR(S): Nakano, Hiroyuki; Tayano, Takao; Uchino, Eiji  
 PATENT ASSIGNEE(S): Nippon Polychemicals Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 INT. PATENT CLASSIF.:  
 MAIN: C08F004-618  
 SECONDARY: C08F010-00  
 CLASSIFICATION: 35-3 (Chemistry of Synthetic High Polymers)  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001200010	A	20010724	JP 2000-7389	20000117

PRIORITY APPLN. INFO.: <--  
 JP 2000-7389  
 20000117

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2001200010	ICM	C08F004-618
	ICS	C08F010-00
	IPCI	C08F0004-618 [ICM,7]; C08F0004-00 [ICM,7,C*]; C08F0010-00 [ICS,7]
	IPCR	C08F0004-618 [I,A]; C08F0004-00 [I,C*]; C08F0004-619 [I,A]; C08F0004-6192 [I,A]; C08F0010-00 [I,C*]; C08F0010-00 [I,A]

## ABSTRACT:

The polymerization catalysts are manufactured by contacting (A) ion-exchange layered silicate chemical treated in the presence of Zn<sup>2+</sup> OR Li<sup>+</sup> and (B) Group 3-12 transition metal compds. with olefins for prepolymer, followed by drying. Thus, a slurry containing 20 g Bencley SL (layered silicate) treated with Li<sub>2</sub>SO<sub>4</sub>, 183 mL heptane, and 10 mmol AlEt<sub>3</sub>, was treated with a mixt. contg. 218 mg dimethylsilylenebis[2-methyl-4-(p-chlorophenyl)dihydroazulenyl]zirconium, 3 mmol triisobutylaluminum, and propylene at 40° for 2 h and dried to give a catalyst with bulk d 0.42 g/cm<sup>3</sup> and good flowability, which gave ethylene-propylene copolymer with catalytic activity 14,900 g-polymer/g-catalyst.

SUPPL. TERM: olefin polymn catalyst ion exchange layered silicate;  
 transition metal catalyst polyolefin prepn catalyst;  
 ethylene propylene copolymer polymn catalyst  
 INDEX TERM: Silicates, properties

ROLE: PRP (Properties)  
 (layered; preparation of polymerization catalysts containing  
 ion-exchange layered silicates for polyolefins)  
 INDEX TERM: Polymerization catalysts  
 (preparation of polymerization catalysts containing ion-  
 exchange  
 layered silicates for polyolefins)  
 INDEX TERM: Transition metal compounds  
 ROLE: CAT (Catalyst use); USES (Uses)  
 (preparation of polymerization catalysts containing ion-  
 exchange  
 layered silicates for polyolefins)  
 INDEX TERM: Polyolefins  
 ROLE: IMF (Industrial manufacture); PREP (Preparation)  
 (preparation of polymerization catalysts containing ion-  
 exchange  
 layered silicates for polyolefins)  
 INDEX TERM: 97-93-8, Triethylaluminum, uses 100-99-2,  
 Triisobutylaluminum, uses 209126-01-2  
 ROLE: CAT (Catalyst use); USES (Uses)  
 (preparation of polymerization catalysts containing ion-  
 exchange  
 layered silicates for polyolefins)  
 INDEX TERM: 9010-79-1P, Ethylene-propylene copolymer  
 ROLE: IMF (Industrial manufacture); PREP (Preparation)  
 (preparation of polymerization catalysts containing ion-  
 exchange  
 layered silicates for polyolefins)  
 INDEX TERM: 115-07-1, Propylene, properties  
 ROLE: PRP (Properties)  
 (preparation of polymerization catalysts containing ion-  
 exchange  
 layered silicates for polyolefins)  
 INDEX TERM: 1318-93-0, Montmorillonite  
 ((Al<sub>1.33</sub>-1.67Mg<sub>0.33</sub>-0.67) (Ca<sub>0</sub>-1Na<sub>0</sub>-  
 1)0.33Si<sub>4</sub>(OH)<sub>2</sub>O<sub>10</sub>.xH<sub>2</sub>O), uses  
 ROLE: CAT (Catalyst use); PRP (Properties); USES  
 (Uses)  
 (treated with lithium or zinc salts; preparation of  
 polymerization catalysts containing ion-exchange layered  
 silicates for polyolefins)  
 INDEX TERM: 7733-02-0, Zinc sulfate  
 10377-48-7, Lithium sulfate  
 ROLE: CAT (Catalyst use); PRP (Properties); USES  
 (Uses)  
 (treated with smectite; preparation of polymerization  
 catalysts  
 containing ion-exchange layered  
 silicates for polyolefins)  
 IT 7733-02-0, Zinc sulfate  
 RL: CAT (Catalyst use); PRP (Properties); USES (Uses)  
 (treated with smectite; preparation of polymerization catalysts containing  
 ion-exchange layered silicates for polyolefins)  
 RN 7733-02-0 HCAPLUS  
 CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 4 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1998:600034 HCAPLUS Full-text  
 DOCUMENT NUMBER: 129:276526  
 ORIGINAL REFERENCE NO.: 129:56387a,56390a  
 ENTRY DATE: Entered STN: 22 Sep 1998  
 TITLE: Preparation of olefin polymers for films with good transparency, mechanical strength, and moldability  
 INVENTOR(S): Ishihama, Yoshiyuki; Uehara, Yumito  
 PATENT ASSIGNEE(S): Mitsubishi Chemical Industries Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 INT. PATENT CLASSIF.:  
 MAIN: C08F010-02  
 SECONDARY: C08F002-00; C08F004-656  
 CLASSIFICATION: 35-4 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 38  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10245418	A	19980914	JP 1997-47716	19970303
				<--
PRIORITY APPLN. INFO.:			JP 1997-47716	19970303
				<--

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 10245418	ICM	C08F010-02
	ICS	C08F002-00; C08F004-656
	IPCI	C08F0010-02 [ICM,6]; C08F0002-00 [ICS,6]; C08F0004-656 [ICS,6]
	IPCR	C08F0002-00 [I,A]; C08F0002-00 [I,C*]; C08F0004-00 [I,C*]; C08F0004-656 [I,A]; C08F0010-00 [I,C*]; C08F0010-02 [I,A]

## ABSTRACT:

Title polymers are prepared by (co)polymerizing olefins in the presence of (A) metallocene-type transition metal compds., (B) ~~don-~~\*\*\*exchangeable\*\*\* layered silicate salts, and optionally (C) organic Al compds. by multistage polymerization process. Thus, ethylene and 1-butene were polymerized in the presence of a pre-polymerized catalyst [prepared from granules

[prepared by treating ME 100 (synthetic mica) with  $ZnSO_4$ , granulating, and drying them], bis(n-butylcyclopentadienyl)zirconium dichloride,  $AlEt_3$ , and ethylene] and  $AlEt_3$  in n-heptane, provided with ethylene and 1-butene, and further polymerized to give a polymer (bulk d. 0.276 g/mL), which was inflation-molded to obtain a film with high transparency.

SUPPL. TERM: transparency film polyolefin prepn metallocene catalyst; mech strength film ethylene butene copolymer; organoaluminum compd polymn catalyst polyolefin film; lamellar silicate salt polymn catalyst polyolefin

INDEX TERM: Polymerization catalysts  
(metallocene, metallocene-type transition metal compds., lamellar silicate salts, and optionally organic Al compds.; preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: Transition metal compounds  
ROLE: CAT (Catalyst use); USES (Uses)  
(metallocene-type, polymerization catalysts; preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: Polymerization  
(multistage; preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: Transparent films  
(preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: Polyolefins  
ROLE: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: 97-93-8, Triethylaluminum, uses 12116-66-4, Bis(cyclopentadienyl)hafnium dichloride 73364-10-0, Bis(n-butylcyclopentadienyl)zirconium dichloride 115701-70-7, Dimethylsilylenebis(4,5,6,7-tetrahydroindenyl)zirconium dichloride 119445-92-0, Bis(1,3-dimethylcyclopentadienyl)zirconium dichloride  
ROLE: CAT (Catalyst use); USES (Uses)  
(polymerization catalyst; preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: 25087-34-7P, 1-Butene-ethylene copolymer  
ROLE: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: 182636-27-7, ME 100  
ROLE: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(treated with salts and/or acids, polymerization catalysts; preparation of olefin polymers for films with good transparency, mech. strength, and moldability)

INDEX TERM: 7733-02-0, Zinc sulfate  
ROLE: CAT (Catalyst use); PEP (Physical, engineering



or chemical process); PROC (Process); USES (Uses)  
(treatment of ion-exchangeable lamellar silicate salts with salts and/or acids for preparation of polyolefins for transparent films)

IT 7733-02-0, Zinc sulfate

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(treatment of ion-exchangeable lamellar silicate salts with salts and/or acids for preparation of polyolefins for transparent films)

RN 7733-02-0 HCAPLUS

CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 5 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1991:227575 HCAPLUS Full-text

DOCUMENT NUMBER: 114:227575

ORIGINAL REFERENCE NO.: 114:38361a,38364a

ENTRY DATE: Entered STN: 15 Jun 1991

TITLE: Sample pretreatment of ion-exchange chromatographic analysis of iodine in food

AUTHOR(S): Schwedt, Georg; Waizenegger, Wolfgang

CORPORATE SOURCE: Inst. Anorg. Anal. Chem., Tech. Univ. Clausthal, Clausthal-Zellerfeld, W-3392, Germany

SOURCE: LaborPraxis (1991), 15(3), 127-31

CODEN: LAPRDE; ISSN: 0344-1733

DOCUMENT TYPE: Journal

LANGUAGE: German

CLASSIFICATION: 17-1 (Food and Feed Chemistry)

Section cross-reference(s): 79

#### ABSTRACT:

Iodate was directly determined in table salt by ion-pair and ion-exchange chromatog. (LiChrosorb RP and Nucleosil 10-NH2 columns, UV detection at 205 and 210 nm, resp.) following dissoln. and acidification. Determination ranges for the resp. methods were 0.2-1.0 and 0.3-1.5 mg/L. I- was determined in representative foods (milk and whey powders, cod, shellfish) by ion-pair chromatog. following ashing with Na2CO3/2nSO4 (recoveries approx.100%) with either amperometric or UV detection (226 nm). A simplified procedure is also described, in which inorg. I- present was extracted with the chromatog. eluent (phosphate/cetrimide) before chromatog. (amperometric detection). Approx. 75-90% of total I- is thereby determined

SUPPL. TERM: iodate table salt ion chromatog; iodine food ion chromatog

INDEX TERM: Milk analysis  
Whey

(iodide determination in powdered, by alkali ashing or extraction followed by ion-pair chromatog.)

INDEX TERM: Fish  
Food analysis  
(iodide determination in, by alkali ashing or extraction followed by ion-pair chromatog.)

INDEX TERM: 20461-54-5, Iodide, analysis  
ROLE: ANT (Analyte); ANST (Analytical study)  
(determination of, in food, by alkali ashing or extraction followed by ion-pair chromatog.)

INDEX TERM: 15454-31-6, Iodate  
ROLE: ANT (Analyte); ANST (Analytical study)  
(determination of, in table salt by ion-pair or ion-exchange chromatog.)

INDEX TERM: 7647-14-5, Sodium chloride, analysis  
ROLE: ANST (Analytical study)  
(iodate determination in table, by ion-pair or ion-exchange chromatog.)

L52 ANSWER 6 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1991:212622 HCAPLUS Full-text  
DOCUMENT NUMBER: 114:212622  
ORIGINAL REFERENCE NO.: 114:35753a,35756a  
ENTRY DATE: Entered STN: 31 May 1991  
TITLE: Method for ion exchange of glass  
INVENTOR(S): Kaneko, Masashi; Kaite, Ryoichi; Toyama, Minoru  
PATENT ASSIGNEE(S): Nippon Sheet Glass Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
INT. PATENT CLASSIF.:  
MAIN: C03C021-00  
CLASSIFICATION: 57-1 (Ceramics)  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02258652	A	19901019	JP 1989-81999	19890331
			<--	
PRIORITY APPLN. INFO.:			JP 1989-81999	19890331
			<--	

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 02258652	ICM	C03C021-00
	IPCI	C03C0021-00 [ICM,5]
	IPCR	C03C0021-00 [I,C*]; C03C0021-00 [I,A]

## ABSTRACT:

In the ion exchange of glass in a molten salt, the glass is pretreated by immersing into a molten salt of different composition. The pretreatment salt preferably consists of halides containing monovalent cations optionally mixed with a sulfate, and the ion-

\*\*\*exchange\*\*\* salt consists of sulfates containing monovalent cations. Thus, a glass containing SiO<sub>2</sub> 58.5, Al<sub>2</sub>O<sub>3</sub> 11.25, MgO 10, Na<sub>2</sub>O 11.25, and TiO<sub>2</sub> 9 mol% was pretreated with a 1:1 (mol) KCl-KI mixture and then immersed in a molten 60:40 (mol) K<sub>2</sub>SO<sub>4</sub>-ZnSO<sub>4</sub>. No sulfate-induced cracks were found on the surface of the ion-exchanged glass.

SUPPL. TERM: glass ion exchange  
pretreatment; sodium ion exchange  
aluminosilicate glass

INDEX TERM: Glass, oxide  
ROLE: PROC (Process)  
(calcium sodium thallium aluminosilicate, ion  
exchange of, by molten salt, pretreatment in)

INDEX TERM: Glass, oxide  
ROLE: PROC (Process)  
(magnesium sodium thallium aluminosilicate, ion  
exchange of, by molten salt, pretreatment in)

INDEX TERM: Glass, oxide  
ROLE: PROC (Process)  
(sodium strontium thallium aluminosilicate, ion  
exchange of, by molten salt, pretreatment in)

INDEX TERM: 7778-80-5, Potassium sulfate, uses and miscellaneous  
ROLE: USES (Uses)  
(molten salts containing, for pretreatment  
and ion exchange of glass)

INDEX TERM: 7447-40-7, Potassium chloride, uses and miscellaneous  
7647-14-5, Sodium chloride, uses and miscellaneous  
7681-11-0, Potassium iodide, uses and miscellaneous  
7681-82-5, Sodium iodide, uses and miscellaneous  
7758-02-3, Potassium bromide, uses and miscellaneous  
ROLE: USES (Uses)  
(molten salts containing, for pretreatment of  
glass for ion exchange)

INDEX TERM: 1314-98-3, Zinc sulfide, uses and miscellaneous  
7446-18-6, Thallium sulfate 10294-54-9, Cesium  
sulfate  
ROLE: USES (Uses)  
(molten salts containing, ion  
exchange of glass in, pretreatment  
in)

L52 ANSWER 7 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1987:124574 HCAPLUS Full-text

DOCUMENT NUMBER: 106:124574

ORIGINAL REFERENCE NO.: 106:20281a,20284a

ENTRY DATE: Entered STN: 17 Apr 1987

TITLE: Manufacture of refractive index  
distribution-type glass lenses

INVENTOR(S): Sakai, Hiroyuki; Asahara, Yoshiyuki; Omi,  
Shigeaki; Nakayama, Shin; Yoneda, Yoshitaka

PATENT ASSIGNEE(S): Hoya Corp., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

INT. PATENT CLASSIF.:

MAIN: C03C021-00

SECONDARY: G02B003-00

ADDITIONAL: G02B009-00

CLASSIFICATION: 57-1 (Ceramics)

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61222943	A	19861003	JP 1985-63697	19850329
			<--	
JP 04066828	B	19921026		
EP 250635	A1	19880107	EP 1986-109143	19860704
			<--	
EP 250635	B1	19901227		
R: DE, FR				
US 4902330	A	19900220	US 1988-228780	19880804
			<--	
PRIORITY APPLN. INFO.:			JP 1985-63697	19850329
			<--	

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 61222943	ICM	C03C021-00
	ICS	G02B003-00
	ICA	G02B009-00
	IPCI	C03C0021-00 [ICM,4]; G02B0003-00 [ICS,4]; G02B0009-00 [ICA,4]
	IPCR	G03B0013-36 [I,C*]; G03B0013-36 [I,A]; C03C0021-00 [I,C*]; C03C0021-00 [I,A]; G02B0003-00 [I,C*]; G02B0003-00 [I,A]; G02B0007-28 [I,C*]; G02B0007-28 [I,A]; G02B0009-00 [I,C*]; G02B0009-00 [I,A]
EP 250635	IPCI	C03C0021-00 [ICM,4]
	IPCR	C03C0021-00 [I,C*]; C03C0021-00 [I,A]
US 4902330	IPCI	C03C0021-00 [ICM,4]
	IPCR	G03B0013-36 [I,C*]; G03B0013-36 [I,A]; C03C0021-00 [I,C*]; C03C0021-00 [I,A]; G02B0003-00 [I,C*]; G02B0003-00 [I,A]; G02B0007-28 [I,C*]; G02B0007-28 [I,A]; G02B0009-00 [I,C*]; G02B0009-00 [I,A]
	NCL	065/030.130; 065/400.000; 359/900.000
	ECLA	C03C021/00B; C03C021/00B4

## ABSTRACT:

The title lenses for fiber optics are prepared by first treating glasses with molten salts containing ions (A) having n greater than n of glass to cause an ion exchange and then treating the glasses with molten salts containing ions with n smaller than n of A to cause an ion exchange. Thus, a phosphate glass rod containing 40% Na<sub>2</sub>O was ion-exchanged with a molten salt containing 40% AgNO<sub>3</sub> and 60% KNO<sub>3</sub> for 240 h at 400° and subsequently ion-exchanged 18 h with NaNO<sub>3</sub> at 400° to give a lens with difference of n 0.14 and numerical aperture 0.69.

SUPPL. TERM: glass lens refractive index distribution; cation

exchange glass lens; silver nitrate ion exchange lens;  
optical fiber lens glass; fiber optic lens glass  
INDEX TERM: Optical fibers  
(glass lenses with n distribution for)  
INDEX TERM: Lenses  
(glass, manufacture of, with n distribution,  
treatment with ion-  
exchanging metal salt in)  
INDEX TERM: Cation exchange  
(treatment of glass lenses by, for n distribution)  
INDEX TERM: 7446-18-6, Thallium sulfate 7761-88-8, Silver  
nitrate, uses and miscellaneous  
ROLE: USES (Uses)  
(glass lenses ion-exchanged with, for high n and  
numerical aperture)  
INDEX TERM: 7631-99-4, Sodium nitrate, uses and miscellaneous  
7733-02-0, Zinc sulfate  
7757-79-1, Potassium nitrate, uses and miscellaneous  
7778-80-5, Potassium sulfate, uses and miscellaneous  
ROLE: USES (Uses)  
(glass lenses ion-exchanged  
with, for n distribution)  
IT 7733-02-0, Zinc sulfate  
RL: USES (Uses)  
(glass lenses ion-exchanged with, for n  
distribution)  
RN 7733-02-0 HCAPLUS  
CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 8 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1984:634575 HCAPLUS Full-text  
DOCUMENT NUMBER: 101:234575  
ORIGINAL REFERENCE NO.: 101:35593a,35596a  
ENTRY DATE: Entered STN: 22 Dec 1984  
TITLE: Colored glass plates with opaque coatings  
PATENT ASSIGNEE(S): Asahi Glass Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
INT. PATENT CLASSIF.: C03C021-00; C03C017-04  
CLASSIFICATION: 57-1 (Ceramics)  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 59152244

A

19840830

JP 1983-23736

198302

17

&lt;--

PRIORITY APPLN. INFO.:

JP 1983-23736

198302

17

&lt;--

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 59152244	IC	C03C0021-00; C03C0017-04
	IPCI	C03C0021-00; C03C0017-04; C03C0017-02 [C*]
	IPCR	C03C0017-02 [I,C*]; C03C0017-04 [I,A]; C03C0017-23 [I,C*]; C03C0017-23 [I,A]; C03C0021-00 [I,C*]; C03C0021-00 [I,A]

## ABSTRACT:

A glass plate is coated with a staining agent containing a Ag salt and/or Cu salt in a desired pattern, heated to color the coated area by ion \*\*\*exchange\*\*\* and reduction, washed to remove the residual coating, printed with a frit paste in a desired line or spot form, and heated to form an opaque coating. Thus, the upper side of a glass plate was screen-printed with a staining agent containing Ag<sub>2</sub>SO<sub>4</sub> 1, Na<sub>2</sub>SO<sub>4</sub> 1, K<sub>2</sub>SO<sub>4</sub> 4, \*\*\*ZnSO<sub>4</sub>\*\*\* 5, kaolin 3, and water 8 parts, dried, heated at 500° in an oxidizing atmospheric, and washed. Then, a Ag frit paste was screen-printed in patterns of antenna and defogger wires onto the glass plate, heated, and cooled to give an automobile rear window glass having colored areas and opaque areas.

SUPPL. TERM: automobile rear window coloration; window ion exchange  
redn coloration; opaque coating automobile rear window

INDEX TERM: Cation exchange  
(in glass windows, for coloring)

INDEX TERM: Coloring  
(of windows, by ion exchange-reduction, compns. for)

INDEX TERM: Coating materials  
(silver frit, on automobile rear windows, for  
opaque patterns)

INDEX TERM: Kaolin, uses and miscellaneous  
ROLE: USES (Uses)  
(staining compns., for coloration of glass windows)

INDEX TERM: Windows  
(automobile, coloration of, opaque coating layer  
formation in, ion exchange  
-reduction treatment in)

INDEX TERM: 7733-02-0 7757-82-6, uses and miscellaneous  
7778-80-5, uses and miscellaneous 10294-26-5  
ROLE: USES (Uses)  
(staining compns., for coloration of glass windows)

IT 7733-02-0  
RL: USES (Uses)  
(staining compns., for coloration of glass windows)

RN 7733-02-0 HCAPLUS

CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 9 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1982:482495 HCAPLUS Full-text

DOCUMENT NUMBER: 97:82495

ORIGINAL REFERENCE NO.: 97:13556h,13557a

ENTRY DATE: Entered STN: 12 May 1984

TITLE: Multimode planar waveguides prepared by  
ion-exchange treatment  
of glass in lithium sulfate-sodium  
sulfate-zinc sulfate  
melts

AUTHOR(S): Petrovskii, G. T.; Agafonova, K. A.; Mishin, A.  
V.; Morozova, I. S.; Filippova, M. N.

CORPORATE SOURCE: Gos. Opt. Inst. im. Vavilova, Leningrad, USSR

SOURCE: Fizika i Khimiya Stekla (1982), 8(3),  
306-10

CODEN: FKSTD5; ISSN: 0132-6651

DOCUMENT TYPE: Journal

LANGUAGE: Russian

CLASSIFICATION: 73-12 (Optical, Electron, and Mass Spectroscopy  
and Other Related Properties)

#### ABSTRACT:

Using the ion exchange method in melts of  
Li2SO4-Na2SO4-ZnSO4 heterogeneous multimode planar optical  
waveguides in glass were obtained that contain 10-15 mol. % Na2O. The n  
mode dependence of the waveguides on temperature and time of the ion-  
\*\*\*exchange\*\*\* process was exptl. studied. The n profile of  
the obtained waveguides was determined by the Wentzel-Kramer-Brillouin method.

SUPPL. TERM: multimode planar waveguide

INDEX TERM: Ion exchange  
(of glasses, planar optical multimode waveguides  
prepared by)

INDEX TERM: Glass, oxide  
ROLE: PRP (Properties)  
(optical waveguides prepared by ion  
exchange treatment of)

INDEX TERM: Waveguides  
(optical, multimode planar, preparation by glass  
ion exchange treatment)

INDEX TERM: 7733-02-0 7757-82-6, uses and miscellaneous  
ROLE: PRP (Properties)  
(planar optical waveguides prepared by ion  
exchange in morden)

INDEX TERM: 10377-48-7  
ROLE: PRP (Properties)  
(planar optical waveguides prepared by ion exchange  
in molten)

IT 7733-02-0  
RL: PRP (Properties)

(planar optical waveguides prepared by ion  
exchange in morden)

RN 7733-02-0 HCAPLUS

CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 10 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1982:410701 HCAPLUS Full-text

DOCUMENT NUMBER: 97:10701

ORIGINAL REFERENCE NO.: 97:1887a,1890a

ENTRY DATE: Entered STN: 12 May 1984

TITLE: Glasses of the alkali metal oxide-boron  
oxide-germanium oxide-silica system for gradient  
optics

AUTHOR(S): Grechanik, L. A.; Gordova, M. R.; Livshits, V.  
Ya.; Karapetyan, G. O.; Khodakovskii, M. D.;  
Datsikov, S. V.

CORPORATE SOURCE: Leningr. Tekhnol. Inst. Tsellyul.-Bum. Prom.,  
Leningrad, USSR

SOURCE: Fizika i Khimiya Stekla (1982), 8(2),  
205-11

CODEN: FKSTD5; ISSN: 0132-6651

DOCUMENT TYPE: Journal

LANGUAGE: Russian

CLASSIFICATION: 57-1 (Ceramics)

ABSTRACT:

The crystallizability (K) and n of R2O-B2O3-GeO2 (R = Li, Na, and K),  
R2O-B2O3-GeO2-SiO2, and R2O-B2O3-SiO2 glasses containing 15-20 mol% B2O3 and  
15-25 mol% R2O were studied with respect to their use for the manufacture of  
gradient optical elements by ion-exchange

\*\*\*treatment.\*\*\* The K of the germanate glasses decreased with  
increasing R2O content and with increasing SiO2 content. The Ge  
borosilicate glass with SiO2:GeO2:B2O3 ratio 1:2:0.8 containing 15.4% (Li2O +  
Na2O) had min. K. The n of Li-containing glasses was maximum and decreased with  
the substitution of Na2O for Li2O. The maximum n gradient (0.03) was  
attained for the Ge borosilicate glass containing 12.1 Li2O and 3.3% Na2O  
after ion-exchange treatment in NaNO3 or  
Na2SO4 + ZnSO4 melts.

SUPPL. TERM: gradient optic germanium borosilicate glass; alkali  
exchange gradient optical glass; sodium lithium  
exchange optical glass; potassium lithium exchange  
optical glass

INDEX TERM: Glass, oxide  
ROLE: USES (Uses)  
(germanium borosilicate, containing alkali metal  
oxides, crystallizability and refractive index of,  
for gradient optics)

INDEX TERM: Ion exchange



(of germanium borosilicate glasses, containing alkali metal oxides, in sodium salt melts, for gradient optics)

INDEX TERM: 1310-53-8, uses and miscellaneous  
ROLE: USES (Uses)  
(glass containing alkali metal oxides and, borosilicate, crystallizability and refractive index in relation to, for gradient optics)

INDEX TERM: 1313-59-3, uses and miscellaneous 12057-24-8, uses and miscellaneous 12136-45-7, uses and miscellaneous  
ROLE: USES (Uses)  
(glass, germanium borosilicate, crystallizability and refractive index in relation to cation-exchange of, for gradient optics)

L52 ANSWER 11 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1982:23712 HCAPLUS Full-text

DOCUMENT NUMBER: 96:23712

ORIGINAL REFERENCE NO.: 96:3893a,3896a

ENTRY DATE: Entered STN: 12 May 1984

TITLE: Ion-exchange synthesis of gradient silicogermanate glass

AUTHOR(S): Livshits, V. Ya.; Karapetyan, G. O.; Kozyrev, V. K.

CORPORATE SOURCE: USSR

SOURCE: Zhurnal Prikladnoi Spektroskopii (1981), 35(4), 732-6

CODEN: ZPSBAX; ISSN: 0514-7506

DOCUMENT TYPE: Journal

LANGUAGE: Russian

CLASSIFICATION: 57-1 (Ceramics)

ABSTRACT:

Optical gradient-index glasses based on a SiO<sub>2</sub>-GeO<sub>2</sub> system were prepared by \*\*\*ion\*\*\* -exchange treatment of glass containing GeO<sub>2</sub>

43.7, SiO<sub>2</sub> 20.0, B<sub>2</sub>O<sub>3</sub> 16.7, Al<sub>2</sub>O<sub>3</sub> 4.2, Na<sub>2</sub>O 6.6, and Li<sub>2</sub>O 8.8 mol% in molten NaNO<sub>3</sub>, LiNO<sub>3</sub> + NaNO<sub>3</sub>, NaNO<sub>3</sub> + Na<sub>2</sub>SO<sub>4</sub>, and Na<sub>2</sub>SO<sub>4</sub> + ZnSO<sub>4</sub>

. The starting glass had d. 3.11 g/cm<sup>3</sup>, n 1.5892, Abbe number 51.8, and transition temperature 475°. The diffusion nature of the n profile in the specimens was determined. The value of the n gradient ( $\Delta n$ ) depended on the treatment temps. and relaxation processes in the modified glass.

No effect of the anion composition of the melts on  $\Delta n$  was observed. The finished glasses had surface n increased by  $\leq 60 \times 10^{-4}$  or

decreased by  $\leq 60 \times 10^{-4}$  in comparison with the initial

glass. Min.  $\Delta n$  was obtained after the ion-

\*\*\*exchange\*\*\* in the Na<sub>2</sub>SO<sub>4</sub> + ZnSO<sub>4</sub> melt.

SUPPL. TERM: refractive index gradient glass; germanate glass  
gradient index

INDEX TERM: Glass, oxide

ROLE: SPN (Synthetic preparation); PREP (Preparation)  
(germinate, optical, with gradient n, ion-exchange preparation of)

INDEX TERM: 12057-24-8P, uses and miscellaneous

ROLE: SPN (Synthetic preparation); PREP (Preparation)  
(glasses, germinate optical, with gradient n, ion-exchange preparation of)

INDEX TERM: 1310-53-8P, uses and miscellaneous

ROLE: SPN (Synthetic preparation); PREP (Preparation)  
(glasses, optical, with gradient n, ion-exchange

preparation of)  
 INDEX TERM: 7631-99-4, uses and miscellaneous 7733-02-0  
 7757-82-6, uses and miscellaneous 7790-69-4  
 ROLE: USES (Uses)  
 (ion-exchange of, with  
 germinate optical glasses, for gradient n)  
 IT 7733-02-0  
 RL: USES (Uses)  
 (ion-exchange of, with germinate optical  
 glasses, for gradient n)  
 RN 7733-02-0 HCAPLUS  
 CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 12 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1980:552425 HCAPLUS Full-text  
 DOCUMENT NUMBER: 93:152425  
 ORIGINAL REFERENCE NO.: 93:24279a,24282a  
 ENTRY DATE: Entered STN: 12 May 1984  
 TITLE: Oxidation-resistant cation-exchange resin and  
 its use  
 INVENTOR(S): Kataoka, Arinobu; Matsuda, Kimiaki; Kamoda,  
 Masaru  
 PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 INT. PATENT CLASSIF.: B01J039-08; B01J041-08  
 CLASSIFICATION: 48-1 (Unit Operations and Processes)  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 55039277	A	19800319	JP 1978-113378	197809 13
JP 61030820	B	19860716		
DE 2936922	A1	19800327	DE 1979-2936922	197909 12
NL 7906849	A	19800317	NL 1979-6849	197909 13

GB 2031906 A 19800430 GB 1979-31761 197909  
13  
GB 2031906 B 19821222 <--  
PRIORITY APPLN. INFO.: JP 1978-113378 A 197809  
13  
<--

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 55039277	IC	B01J0039-08; B01J0041-08
	IPCI	B01J0039-08; B01J0039-00 [C*]; B01J0041-08; B01J0041-00 [C*]; C02F0001-42 [ICA]; C08F0008-20 [ICA]; C08F0008-00 [ICA,C*]
	IPCR	C08F0008-00 [I,A]; B01J0039-00 [I,C*]; B01J0039-20 [I,A]; B01J0041-00 [I,C*]; B01J0041-14 [I,A]; B01J0047-00 [I,C*]; B01J0047-00 [I,A]; C02F0001-42 [I,C*]; C02F0001-42 [I,A]; C08F0008-00 [I,C*]; C08F0008-20 [I,A]; C08F0008-22 [I,A]
DE 2936922	IPCI	B01J0001-08; C02C0005-08; C25D0021-22; C25D0021-00 [C*]
	IPCR	C08F0008-00 [I,A]; B01J0039-00 [I,C*]; B01J0039-20 [I,A]; B01J0041-00 [I,C*]; B01J0041-14 [I,A]; B01J0047-00 [I,C*]; B01J0047-00 [I,A]; C02F0001-42 [I,C*]; C02F0001-42 [I,A]; C08F0008-00 [I,C*]; C08F0008-20 [I,A]; C08F0008-22 [I,A]
NL 7906849	IPCI	C08F0008-20; C08F0008-00 [C*]; B01J0039-20; B01J0039-00 [C*]
	IPCR	C08F0008-00 [I,A]; B01J0039-00 [I,C*]; B01J0039-20 [I,A]; B01J0041-00 [I,C*]; B01J0041-14 [I,A]; B01J0047-00 [I,C*]; B01J0047-00 [I,A]; C02F0001-42 [I,C*]; C02F0001-42 [I,A]; C08F0008-00 [I,C*]; C08F0008-20 [I,A]; C08F0008-22 [I,A]
GB 2031906	IPCI	C08F0008-22; C08F0008-00 [C*]
	IPCR	C08F0008-00 [I,A]; B01J0039-00 [I,C*]; B01J0039-20 [I,A]; B01J0041-00 [I,C*]; B01J0041-14 [I,A]; B01J0047-00 [I,C*]; B01J0047-00 [I,A]; C02F0001-42 [I,C*]; C02F0001-42 [I,A]; C08F0008-00 [I,C*]; C08F0008-20 [I,A]; C08F0008-22 [I,A]

## ABSTRACT:

Ion exchange resins are treated with Cl, Br, or F in aqueous medium at -20 to +200° to improve their oxidation resistance without affecting the ion-exchange capacity adversely. Thus, 15 parts ion exchange resin ES-26 was mixed with 100 parts water, blown with Cl<sub>2</sub> at 19 parts/h for 1 h, reacted at 7-30° under airtight condition for 3 h, filtered, and washed to obtain 17.5 parts oxidation-resistant reddish brown resin. When 10 mL of the resin was packed into a 12 mm-diameter column and an aqueous solution containing CrO<sub>3</sub> 250, H<sub>2</sub>SO<sub>4</sub> 2.5, and ZnSO<sub>4</sub> 4 g/L was passed through the column at space velocity 5 h<sup>-1</sup>, the Cr<sup>5+</sup> reduction was nil and the residual Zn concentration 0.1 ppm, compared to 3% and 0.1 with untreated ES-26.

SUPPL. TERM: cation exchanger oxidn resistant; zinc cation exchange

INDEX TERM: Cation exchangers  
(oxidation-resistant, by chlorine treatment)

INDEX TERM: 7782-50-5, uses and miscellaneous  
ROLE: USES (Uses)  
(cation-exchanger treatment by, for oxidation resistance)

INDEX TERM: 11115-80-3  
ROLE: PROC (Process)  
(chlorine treatment of, for oxidation resistance)

INDEX TERM: 7440-66-6, uses and miscellaneous  
ROLE: REM (Removal or disposal); PROC (Process)  
(removal of, from chromate-sulfate solution by cation exchange)

L52 ANSWER 13 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1974:17845 HCAPLUS Full-text

DOCUMENT NUMBER: 80:17845

ORIGINAL REFERENCE NO.: 80:2963a,2966a

ENTRY DATE: Entered STN: 12 May 1984

TITLE: Removal of nickel from cadmium and zinc sulfate solutions

INVENTOR(S): Startsev, V. N.; Yatsuk, V. V.; Bakardzhieva, T. P.; Stepanova, L. N.

PATENT ASSIGNEE(S): All-Union Scientific-Research Mining-Metallurgical Institute of Nonferrous Metals

SOURCE: U.S.S.R. From: Otkrytiya, Izobret., Prom. Obratzsy, Tovarnye Znaki 1973, 50(25), 97. CODEN: URXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Russian

INT. PATENT CLASSIF.: C22B

CLASSIFICATION: 54-2 (Extractive Metallurgy)

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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SU 384911	A1	19730529	SU 1971-1616848	19710127
			<--	
PRIORITY APPLN. INFO.:			SU 1971-1616848	A 19710127
			<--	

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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SU 384911	IC	C22B
	IPCI	C22B0019-26; C22B0017-04; C22B0023-04
	IPCR	C22B0003-00 [I,C*]; C22B0003-24 [I,A]

## ABSTRACT:

Ni was removed from the CdSO<sub>4</sub> and ZnSO<sub>4</sub> solns. by the selective sorption of Ni on an amphoteric ion exchanger, followed by its regeneration with a mineral acid solution To increase the sorption capacity of ion exchanger and to increase the selectivity and degree of purification, Cu was removed from the initial solns., then the solns. were passed through the

aminocarboxylic ion exchanger with simultaneous neutralization of the solution with an acid-soluble substance such as ZnO, CdO, or their mixture

SUPPL. TERM: cadmium sulfate soln purifn; zinc sulfate soln purifn;  
nickel removal sulfate soln  
INDEX TERM: 7733-02-0P 10124-36-4P  
ROLE: PREP (Preparation)  
(purification of solns. of, with amphoteric ion  
exchangers, nickel removal in)  
INDEX TERM: 7440-43-9P, preparation 7440-66-6P, preparation  
ROLE: PREP (Preparation)  
(purification of sulfate solns. of, with amphoteric ion  
exchangers, nickel removal in)  
INDEX TERM: 7440-02-0, uses and miscellaneous  
ROLE: REM (Removal or disposal); PROC (Process)  
(removal of, from cadmium sulfate and zinc  
sulfate solns., with amphoteric ion  
exchangers)  
IT 7733-02-0P  
RL: PREP (Preparation)  
(purification of solns. of, with amphoteric ion  
exchangers, nickel removal in)  
RN 7733-02-0 HCAPLUS  
CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 14 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1973:507945 HCAPLUS Full-text  
DOCUMENT NUMBER: 79:107945  
ORIGINAL REFERENCE NO.: 79:17503a,17506a  
ENTRY DATE: Entered STN: 12 May 1984  
TITLE: Detoxication of waste waters from rayon fiber  
manufacturing plants in the USSR  
AUTHOR(S): Smirnov, V. S.; Matuskov, Yu. E.; Kuchinskii, M.  
Kh.; Ioffe, A. Z.  
CORPORATE SOURCE: Leningr. Fil., Vses. Nauchno-Issled. Inst.  
Iskusstv. Volokna, Leningrad, USSR  
SOURCE: Khimicheskie Volokna (1973), 15(4),  
3-9  
CODEN: KVLKA4; ISSN: 0023-1118  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
CLASSIFICATION: 60-2 (Sewage and Wastes)  
Section cross-reference(s): 39  
ABSTRACT:  
Treatment of waste water from rayon manufacturing plants aimed at regenerating  
\*\*\*ZnSO4\*\*\* and Na2SO4 and recirculating water consists of mech.  
purification (degasers, flotation, quartz filters) to remove CS2 and H2S and

\*\*\*ion\*\*\* -exchange which includes removal of Zn<sup>2+</sup>, Fe<sup>2+</sup>, and Ca<sup>2+</sup> on a strongly acid catex KU-2 + 8 in Na-form, removal of Na<sup>+</sup> on Ku-2 + 8 in H-form, removal of SO<sub>4</sub><sup>2-</sup> and Cl<sup>-</sup> on a weakly basic anex AN-18-10p, removal of organic substances using the strongly basic anex AV-22, and removal of Na<sup>+</sup>, present in purified water after passage through AV-22, on a weakly acid catex KB-2p in H-form.

SUPPL. TERM: rayon fiber waste water  
INDEX TERM: Waste water treatment  
(flotation and ion exchange,  
sodium sulfate and zinc sulfate  
recovery by, of rayon manufacture effluent)  
INDEX TERM: Rayon, preparation  
ROLE: IMF (Industrial manufacture); PREP (Preparation)  
(waste water from manufacture of, sodium sulfate and  
zinc sulfate recovery from)  
INDEX TERM: 7733-02-0P 7757-82-6P, preparation  
ROLE: PREP (Preparation)  
(recovery of, from rayon manufacture effluent)  
INDEX TERM: 75-15-0, uses and miscellaneous 7439-89-6, uses and  
miscellaneous 7440-66-6, uses and miscellaneous  
7440-70-2, uses and miscellaneous 7783-06-4, uses  
and miscellaneous 14808-79-8 16887-00-6  
ROLE: REM (Removal or disposal); PROC (Process)  
(removal of, from rayon manufacture effluent)  
IT 7733-02-0P  
RL: PREP (Preparation)  
(recovery of, from rayon manufacture effluent)  
RN 7733-02-0 HCAPLUS  
CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 15 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1973:20001 HCAPLUS Full-text  
DOCUMENT NUMBER: 78:20001  
ORIGINAL REFERENCE NO.: 78:3149a,3152a  
ENTRY DATE: Entered STN: 12 May 1984  
TITLE: Selective removal and recovery of zinc  
sulfates from the waste waters of  
cellulose regenerated fiber production  
Schwabe, Friedhold; Wolf, Friedrich; Schwager,  
Gotthard  
INVENTOR(S):  
SOURCE: Ger. (East), 4 pp.  
CODEN: GEXXA8  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
INT. PATENT CLASSIF.: C02C  
CLASSIFICATION: 60-2 (Sewage and Wastes)  
Section cross-reference(s): 43, 39

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 90522		19720605	DD 1970-151764	197012 07

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## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DD 90522	IC IPCI	C02C C02C

## ABSTRACT:

The waste waters are passed through a bed of a weakly-basic ion exchange resin in the free amine, bicarbonate, or carbonate form with at least 2 N atoms of differing basicity and with an effective porosity of 10-50% consisting of polyamines and (or) triaminopropane as anchor group with different basic positions. Prior to passage through the resin the waste water is brought to incipient precipitation by treatment with lime. The charged resin is eluted with mineral acid or acid working solution in which the mineral salts are removed and from which they are recovered.

SUPPL. TERM: heavy metal recovery waste water; cellulose regeneration waste water; fiber cellulose regeneration; zinc recovery waste water

INDEX TERM: Ion exchangers  
(amine compound, zinc sulfate recovery from cellulose fiber manufacturing effluent by)

INDEX TERM: Waste water treatment  
(ion exchange, zinc sulfate recovery by, of cellulose fiber manufacturing effluent)

INDEX TERM: Synthetic fibers  
ROLE: IMF (Industrial manufacture); PREP (Preparation)  
(waste water from manufacture of, zinc sulfate recovery from, by ion exchange)

INDEX TERM: 7733-02-0F  
ROLE: PREP (Preparation)  
(recovery of, from waste water from cellulose fiber manufacture, by ion exchange)

IT 7733-02-0F  
RL: PREP (Preparation)  
(recovery of, from waste water from cellulose fiber manufacture, by ion exchange)

RN 7733-02-0 HCAPLUS

CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



L52 ANSWER 16 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1971:532046 HCAPLUS Full-text  
DOCUMENT NUMBER: 75:132046  
ORIGINAL REFERENCE NO.: 75:20843a,20846a  
ENTRY DATE: Entered STN: 12 May 1984  
TITLE: Purification of zinc solutions  
INVENTOR(S): Yatsuk, V. V.; Makarov, M. K.; Startsev, V. N.;  
Getskin, L. S.; Ben'yash, G. N.; Giganov, G. P.;  
Grachev, L. L.  
PATENT ASSIGNEE(S): All-Union Scientific-Research  
Mining-Metallurgical Institute of Nonferrous  
Metals  
SOURCE: U.S.S.R. From: Otkrytiya, Izobret., Prom.  
Obraztsy, Tovarnye Znaki 1971, 48(21), 93-4.  
CODEN: URXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Russian  
INT. PATENT CLASSIF.: C22B  
CLASSIFICATION: 54 (Extractive Metallurgy)  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
SU 308081		19710701	SU	196712 13

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## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
-----	----	-----
SU 308081	IC IPCI	C22B C22B

## ABSTRACT:

Cu was removed from ZnSO<sub>4</sub> solns. during the hydrometallurgical preparation of Zn. To increase the extraction of Cu, the latter was separated by sorption on selective ion-exchange resins containing as functional groups compds. selected from the group containing carboxyl or hydroxyl groups combined with amino groups through 1-3 C atoms, followed by desorption of Cu from the resin by a H<sub>2</sub>SO<sub>4</sub> solution and regeneration of the resin by water.

SUPPL. TERM: zinc soln copper removal  
INDEX TERM: 7440-66-6P, preparation  
ROLE: PREP (Preparation)  
(from sulfate solns., copper  
removal in)  
INDEX TERM: 7440-50-8, uses and miscellaneous  
ROLE: REM (Removal or disposal); PROC (Process)  
(removal of, from zinc sulfate solution in zinc  
manufacture)

L52 ANSWER 17 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1970:30313 HCAPLUS Full-text  
DOCUMENT NUMBER: 72:30313  
ORIGINAL REFERENCE NO.: 72:5516h,5517a



October 24, 2008

10/577,678

49

ENTRY DATE: Entered STN: 12 May 1984  
 TITLE: L-Serine  
 INVENTOR(S): Nakayama, Kiyoshi; Kase, Hiroshi  
 PATENT ASSIGNEE(S): Kyowa Fermentation Industry Co., Ltd.  
 SOURCE: Ger. Offen., 13 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 INT. PATENT CLASSIF.: C12D013-06  
 CLASSIFICATION: 16 (Fermentations)  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1916421	A	19691023	DE 1969-1916421	19690331
			<--	
DE 1916421	B2	19730315		
DE 1916421	C3	19731004		
IT 1004511	B	19760720	IT 1969-51399	19690411
			<--	
GB 1207096	A	19700930	GB 1969-1207096	19690415
			<--	
FR 2006437	A5	19691226	FR 1969-11810	19690416
			<--	
US 3692628	A	19720919	US 1969-817202	19690417
			<--	
PRIORITY APPLN. INFO.:			JP 1968-25529	A 19680418
			<--	

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1916421	IC	C12D013-06
	IPCI	C12D0013-06
	IPCR	C12P0013-00 [I,C*]; C12P0013-06 [I,A]
IT 1004511	IPCI	C12D
	IPCR	C12P0013-00 [I,C*]; C12P0013-06 [I,A]
GB 1207096	IPCI	C12D0013-00
FR 2006437	IPCI	C12D0013-00
	IPCR	C12P0013-00 [I,C*]; C12P0013-06 [I,A]
US 3692628	IPCI	C12D0013-06
	NCL	435/116.000; 435/815.000; 435/830.000; 435/840.000; 435/843.000

## ABSTRACT:

L-Serine is produced by aerobically fermenting a nutrient medium containing n-paraffins, carbohydrates, methionine, or isoleucine with a strain of *Arthrobacter paraffineus* ATCC 21218 or ATCC 21219, *Brevibacterium*

ketoglutamicum ATCC 21222, or Corynebacterium hydrocarboclastus ATCC 21221. The medium does not require the expensive DL-glyceric acid required heretofore. The serine is recovered by ion-exchange\*\*\* resin treatment. Thus, A. paraffineus was inoculated into a 250-ml flask containing 20 ml culture medium (2% sorbitol, 1% meat extract, 1% peptone, 0.5% yeast extract, 0.3% NaCl, and 50 mg meso-diaminopimelic acid/l.). After aerobic shaking at 30° for 24 hr, 2 ml of the culture was inoculated into 20 ml of fermentation medium (pH 7.4) in a 250-ml flask. The medium had the composition: 5% n-alkane mixture (C12-C14), 2% (NH4)2SO4, 0.1% K2HPO4, 0.1% KH2PO4, 0.1% MgSO4.7H2O, 2% CaCO3, 1 mg thiamine/l., 100 mg L-methionine/l., and 1 ml solution A/l. The composition of solution A was 88 Na2B4O7.10H2O, 37 (NH4)6Mo7O24.4H2O, 970 FeCl3.6H2O, 8.8 ZnSO4.7H2O, 20 CuSO4.5H2O, and 7.2 mg MnCl2.4H2O/l. The cultivation was performed with aerobic shaking at 30° for 96 hr to yield 3.3 mg L-serine/l. Two l. of the filtered medium was passed through a column of a strongly acid cationic polystyrene exchange resin (Diaion SKI) to adsorb the L-serine. The column was washed with water, then eluted with NH3 water. L-Serine (4.5 g) crystals were obtained.

SUPPL. TERM: serine prodn fermn; fermn serine prodn; amino acid serine prodn  
 INDEX TERM: Corynebacterium  
 (hydrocarboclastus, serine manufacture by)  
 INDEX TERM: Brevibacterium  
 (ketoglutamicum, serine manufacture by)  
 INDEX TERM: Arthrobacter  
 (paraffineus, serine manufacture by)  
 INDEX TERM: Fermentation  
 (serine, without glyceric acid)  
 INDEX TERM: 56-45-1P, preparation  
 ROLE: PREP (Preparation)  
 (by fermentation without glyceric acid)

L52 ANSWER 18 OF 25 HCAPLUS COPYRIGHT 2008 ACS ON STN  
 ACCESSION NUMBER: 1969:48565 HCAPLUS Full-text  
 DOCUMENT NUMBER: 70:48565  
 ORIGINAL REFERENCE NO.: 70:9151a,9154a  
 ENTRY DATE: Entered STN: 12 May 1984  
 TITLE: Oxyethylated carbohydrate modifiers for viscose spinning  
 INVENTOR(S): Schmiedeknecht, Heiner; Gerhardt, Werner;  
 Haudel, Gottfried  
 PATENT ASSIGNEE(S): Deutsche Akademie der Wissenschaften zu Berlin  
 SOURCE: Ger., 3 pp.  
 CODEN: GWXXAW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 INT. PATENT CLASSIF.: D01F  
 CLASSIFICATION: 39 (Textiles)  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 1285663		19681219	DE 1964-D43436	196401 24

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1285663	IC	D01F
	IPCI	D01F
	IPCR	D01F0002-00 [I,C*]; D01F0002-10 [I,A]

## ABSTRACT:

Filaments or fibers with improved dry strength, wet strength, and reduced swelling, were prepared by spinning regenerated cellulose filaments into an aqueous coagulating bath containing H<sub>2</sub>SO<sub>4</sub>, Na<sub>2</sub>SO<sub>4</sub>, or ZnSO<sub>4</sub> and a modifier prepared from oxyethylated glucose, sucrose, carbohydrates,  $\beta$ -cellulose, or  $\gamma$ -cellulose. Thus, a viscose containing 6-7% cellulose and 5.5-6.5% alkali was spun into a coagulating bath at 55-60° containing H<sub>2</sub>SO<sub>4</sub> 50-70, ZnSO<sub>4</sub> 70-90, and 120-60 g. Na<sub>2</sub>SO<sub>4</sub> 120-160 g./l. The filament was removed, stretched 80-100% in 95° water, washed, and dried. To the viscose, 2-3 g./l. of an ethylene oxide (I)-oxyethylated sucrose was added. This compound was prepared by passing I through a solution containing 105 parts sucrose in 450 parts H<sub>2</sub>O and containing 8.24 parts KOH at 81-2°. The reaction mixture was cooled and treated with 20 ml. ion-exchange resin and neutralized. The ion-exchange resin was removed, washed with H<sub>2</sub>O, and the solution concentrated by evaporation on a water bath and subsequently under vacuum. Other compds. used in a similar manner were oxyethylated mannitol, oxyethylated cellulose, and the addition product of HCHO and diglycol.

SUPPL. TERM: viscose spinning modifiers; spinning modifiers  
viscose; regenerated cellulose filaments; ethylene  
oxide oxyethylated sucrose; mannitol oxyethylated;  
cellulose oxyethylated; formaldehyde diglycol addn  
product; diglycol formaldehyde addn product

INDEX TERM: Rayon, preparation  
ROLE: PREP (Preparation)  
(modification of, with carbohydrate-ethylene oxide  
reaction products)

INDEX TERM: Carbohydrates, compounds  
ROLE: USES (Uses)  
(reaction products with ethylene oxide, rayon  
treated by)

INDEX TERM: 75-21-8, Ethylene oxide  
ROLE: USES (Uses)  
(reaction products with carbohydrates, rayon  
treated by)

INDEX TERM: 57-50-1, Sucrose 69-65-8 9034-32-6, Hemicellulose  
ROLE: USES (Uses)  
(reaction products with ethylene oxide, rayon  
treated by)

L52 ANSWER 19 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1968:445361 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 69:45361

ORIGINAL REFERENCE NO.: 69:8527a,8530a

ENTRY DATE: Entered STN: 12 May 1984

TITLE: Metallurgical treatment of zinc oxide minerals

AUTHOR(S): Scacchiati, G.; Bianchini, A.; Vaschetti, A.

CORPORATE SOURCE: Centro Ric. Met., Turin, Italy

SOURCE: Metallurgia Italiana (1968), 60(5),  
377-86

CODEN: MITLAC; ISSN: 0026-0843

DOCUMENT TYPE: Journal  
LANGUAGE: Italian  
CLASSIFICATION: 54 (Extractive Metallurgy)  
ABSTRACT:

Minerals from Iglesias, Sardinia, are already used for Zn metal production. These ore are of oxide type with a Zn content of .apprx.6-8% and of diversified composition. A typical composition of a preponderant type is the following: Zn 7.35, Pb 1.10, FeO 12.50, SiO<sub>2</sub> 7.30, CaO 18.60, MgO 8.35, S 0.40, CO<sub>2</sub> 29.50, Al<sub>2</sub>O<sub>3</sub> 0.48, Cl 0.12, F 0.012, Ge 0.003, Cd 0.012, Cu 0.008, As 0.001, Sb 0.001, Ni 0.0024, Mn 0.15, Co 0.0004, Ga 0.0004, In 0.0002, and Tl 0.0002%. These percentages are referred to dry mineral. Besides elemental anal., x-ray diffraction was applied to determine mineralogical composition by using a Philips-Norelco apparatus with

\*\*\*Cu\*\*\* anticathode, eliminating K $\beta$  radiation with a Ni filter, on the original ore as well as on samples separated gravimetrically, magnetically, or by inspection, showing dolomite, hemimorphite, smithsonite, quartz, goethite, and lepidocrocite. Further present is limonite, an amorphous Fe oxide mixture, and in small amts. cerussite and galena. In variously separated fractions were also fayalite, barite, strontianite, magnetite, and wurtzite, which could not be detected in the original sample. The main part of the gangue is therefore dolomite, quartz, and various Fe oxides, wherein Zn occurs as ZnCO<sub>3</sub> and ZnSiO<sub>3</sub>, intimately mixed with the other constituents. This excludes hydrometallurgical treatment and enrichment consists in mech. sink-float and flotation methods. A laboratory method consists in dissoln. in controlled-pH H<sub>2</sub>SO<sub>4</sub>, followed by Zn precipitation with NH<sub>4</sub>OH and cold treatment of the slime with Ca(OH)<sub>2</sub> to reclaim NH<sub>4</sub>OH; the H<sub>2</sub>SO<sub>4</sub> mineral solution can also be treated with ion-exchange resin Lewatit S 100, extracting practically all Zn<sup>++</sup>. Another method is leaching with NH<sub>4</sub>OH under pressure in the presence of (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> and precipitation of Zn with CO<sub>2</sub> and reclaiming of NH<sub>4</sub>OH with Ca(OH)<sub>2</sub>. Another method is treatment of the mineral at 700° with SO<sub>2</sub> and air, leaching of the \*\*\*ZnSO<sub>4</sub>\*\*\* formed, followed by precipitation with NH<sub>4</sub>OH and reclaiming of NH<sub>4</sub>OH with Ca(OH)<sub>2</sub>. The material in solution can also be treated with Ca dithionate with air and SO<sub>2</sub>, the Zn(OH)<sub>2</sub> being precipitated from the dithionate solution with Ca(OH)<sub>2</sub>, the Ca dithionate being recycled. Another treatment consists in chlorinating at 800° in the presence of NaCl and SO<sub>2</sub> or pyrite, dissolving the ZnCl<sub>2</sub>, precipitation of ZnClOH with Ca(OH)<sub>2</sub>, and roasting of the precipitate at 1000°. Other treatments are also indicated.

SUPPL. TERM: zinc ore treatment; oxidized Zn ore treatment; ion exchange Zn ore; leaching Zn ore  
INDEX TERM: 7440-66-6P, preparation  
ROLE: PREP (Preparation)  
(from zinc oxides, of Sardinia)

L52 ANSWER 20 OF 25 HCAPLUS COPYRIGHT 2008 ACS ON STN

ACCESSION NUMBER: 1967:118848 HCAPLUS Full-text  
DOCUMENT NUMBER: 66:118848  
ORIGINAL REFERENCE NO.: 66:22091a, 22094a  
ENTRY DATE: Entered STN: 12 May 1984  
TITLE: Isolation of bacitracin  
INVENTOR(S): Kalina, Vladimir; Ulbert, Stanislav; Masita, Artur  
SOURCE: Czech., 3 pp.  
CODEN: CZXXA9  
DOCUMENT TYPE: Patent  
LANGUAGE: Czech

INT. PATENT CLASSIF.: C12D  
CLASSIFICATION: 63 (Pharmaceuticals)  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CS 119180		19660715	CS	19640626

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## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
CS 119180	IC IPCI	C12D C12D

## ABSTRACT:

Bacitracin (I) gives, in the presence of complex-forming metals (M), with organic sulfo compds. a water-insol. complex (RSO<sub>3</sub>H)4nMn in which is used as feed additive or worked up to I by ion exchanger  
\*\*\*treatment\*\*\* Thus, 9 l. fermentation medium containing 140 units/ml. was made acid to pH 2.3 with H<sub>2</sub>SO<sub>4</sub>, stirred with 300 g. SiO<sub>2</sub>, filtered, and the cake washed with 3000 ml. H<sub>2</sub>O to give 7800 ml. filtrate containing 122 units/ml.; 1300 ml. was treated with 1.5 g. ZnSO<sub>4</sub> and 50 ml. 10% solution of Na diisobutyl naphthalenesulfonate. The precipitate was dissolved in a min. necessary volume of MeOH, the solution divided into 2 equal parts. Solution A was adjusted to pH 7.5, passed through Zerolit FF (in AcO<sup>-</sup> form), the effluent evaporated, made acid, filtered with C, the filtrate treated with ZnSO<sub>4</sub>, the precipitate centrifuged, and the residual suspension lyophilized to give 1.0 g. Zn-I with an activity 55 unit/mg. The solution B was passed through a thickly crossed sulfonated cation exchanger in H-form, neutralized on a slightly basic anion exchanger in OH-form, the effluent shaken twice with BuOH (2:1), the BuOH extract evaporated with little H<sub>2</sub>O and the residue lyophilized to give 0.55 g. pure I with an activity 87 units/mg.

SUPPL. TERM: bacitracin complex feed additive ion exchanger;  
bacitracin prepn fermn  
INDEX TERM: 1405-87-4P, Bacitracins  
ROLE: BMF (Bioindustrial manufacture); BIOL  
(Biological study); PREP (Preparation)  
(manufacture of)

L52 ANSWER 21 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1966:503519 HCAPLUS Full-text  
DOCUMENT NUMBER: 65:103519  
ORIGINAL REFERENCE NO.: 65:19338a-h  
ENTRY DATE: Entered STN: 22 Apr 2001  
TITLE: Investigation of the properties of ion exchanged  
type A molecular sieves by gas adsorption  
methods  
AUTHOR(S): Fuertig, Helmut; Wolf, Friedrich  
CORPORATE SOURCE: Univ. Halle, Germany  
SOURCE: Tonindustrie-Zeitung und Keramische Rundschau (1966), 90(7), 297-303  
CODEN: TZKRAB; ISSN: 0040-9200  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
CLASSIFICATION: 4 (Surface Chemistry and Colloids)

## ABSTRACT:

cf. CA 64, 4300h. The starting material of the Na-ion form (Na2A) had the following characteristics: formula in dehydrated condition 0.922 Na2O.1203.1.888 SiO2; number of adsorbed H2O mol. in saturated condition/mole of mol. sieve at 20°, 4.1; dehydrated mol. weight, 273; adsorption capacity for H2O vapor at 20° and P/P3 = 0.9, 0.27 cc./g.;

\*\*\*ion\*\*\* exchange capacity of the dehydrated crystals expressed as the anal. determined Na-ion content, 6.75 meq./g.; average crystal size by electron-microscopic determination, 1.13 + 10-4 cm.; pycnometric d. of dehydrated crystals in H2O, 2.045 g./cc.; true d. of the dehydrated crystals by the He method, 2.34; crystal porosity determined by adsorption capacity for H2O vapor at P/P8 = 0.9 and 20°, 40.9%. The degree of ion exchange is defined as: the percent of the originally available Na-ions in the mol. sieve replaced by exchangeable cation equivalent to obtain a variety of degrees of ion-

\*\*\*exchange\*\*\* with a large number of cations. The mol. sieves were stirred at room temperature in approx. 0.1N solns. of the following salts: MgCO3, Ca(NO3)2, SrCl2, BaCl2, KCl, LiCl, MnCl2, CoCl2, NiCl2, \*\*\*ZnSO4\*\*\*, MgCl2, AgNO3. To obtain the most complete ion

\*\*\*exchange\*\*\* possible, the mol. sieve was exposed to 5-20 cation equivs., if necessary several times in succession. All ion-

\*\*\*exchange\*\*\* treatments were performed at room temperature since with a number of cation types irreversible lattice changes can be expected. The so-obtained samples charged with different types of cations, were dried at 90-100°, mech. formed under 100 atmospheric, fired at 450° for 3 hrs., broken up into pellets of 0.315 to 0.5 mm. and again activated for 3 hrs. at 450°. The activation normally took place in air at normal pressures. The adsorption was measured with two different apparatuses: (a) adsorption apparatus for liquid and gasified substances and (b) the dynamic adsorption method by Kubelka (CA 25, 4164) and Broetz and Spengler (CA 44, 6249e) for the adsorption isotherms of H2O vapor at 20° and pressures of 10-1-17 mm. Hg. The adsorption measurements are reported as isotherms where the adsorption of N or C4H10 is plotted against the partial pressure and as adsorption isobars where the adsorption is plotted against the degree of ion

\*\*\*exchange\*\*\*. An increase in pore size from 4.2 to 5 Å., characterized by a strong increase in the adsorption capacity for N and C4H10, was found for Mg++, Ca++, Sr++, Ba++, Mn++, Ni++, Cu++, and Zn++. However, in case of the Ni++ the pore size increase is accompanied by a breakdown of the crystal lattice. This effect is particularly evident in the Na+/Ba++ system where no N adsorption takes place at any degree of

\*\*\*ion\*\*\* exchange. The mechanism behind the pore size increase was discussed in an earlier paper (CA 64, 4300h). Charging Na2A with K+ or Li+ results in an unexpected pore size decrease from 4.2 to approx. 3 Å. For the Na+/K+ type, this decrease already starts at a degree of ion exchange of 5%; for the Na+/Li+ type not until 50%. Actually, in the series Na+/Li+-Na+/Na+/K+ the Na+ form with the 4.2-Å. pore size is an exceptional case; the Na+ is not located as close to the absolute center of the pores as either K+ or Li+ and therefore leaves a larger area open for diffusion. The effective pore size strongly depends on the type of the adsorbate mol. and on the degree of interaction between adsorbate and mol. sieve. For instance, where Na+/K+ sieves adsorb no N mol. at ion exchange degrees >10%, the significantly larger SO2 mols. are strongly adsorbed because of their polarity. In the isobars, where the adsorption is plotted against the degree of ion exchange, very often a well-defined maximum is found: at higher degrees of ion

\*\*\*exchange\*\*\* the adsorption capacity decreases sharply. This can be explained in most cases by breakdown phenomena in the mol. sieve lattice.

Comparison of the adsorption isobars for the various types of cations

investigated shows that the mixed types Na+/Li+, Na+/Ca++, and Na+/Ag+ are the most stable; even at very high degrees of ion \*\*\*exchange\*\*\*, no significant decrease in adsorption capacity takes place. Conversely, the adsorption capacity for H<sub>2</sub>O vapor of Na+/K+ types decreases sharply at degrees of ion exchange >75%.

Examples of direct lattice breakdown in the crystals occurring during drying and activating at 450° are the cations of Sr, Ba, Co, Ni, Cu, Zn, and reduced Ag. The extent of lattice damage at 450° also depends on the environment. For instance, a completely Co loaded sieve Type A still has a marked adsorption capacity when activated in vacuum in the absence of O whereas in air the lattice is destroyed completely under Co oxide formation. Reduction in H of a partially Ag+ exchanged system also destroys the mol. sieve structure.

INDEX TERM: Zeolites  
(base exchange capacity of type A)

INDEX TERM: Base exchange or Cation exchange  
(capacity, of type A zeolites)

INDEX TERM: Adsorption  
(of butane and N by type A zeolites, base exchange and)

INDEX TERM: Pores  
(size of, of zeolites of type A, base exchange and)

INDEX TERM: 106-97-8, Butane 7446-09-5, Sulfur dioxide  
7727-37-9, Nitrogen  
(adsorption of, by zeolites of type A, base exchange and)

INDEX TERM: 7439-93-2, Lithium 7439-96-5, Manganese 7440-02-0, Nickel 7440-48-4, Cobalt  
(base exchange of, on type A zeolites)

INDEX TERM: 7439-95-4, Magnesium 7440-09-7, Potassium 7440-22-4, Silver 7440-24-6, Strontium 7440-39-3, Barium 7440-66-6, Zinc 7440-70-2, Calcium  
(base exchange of, on zeolites of type A)

INDEX TERM: 7440-50-8, Copper  
(base exchange of, on zeolites of type A, adsorption and)

L52 ANSWER 22 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1965:452588 HCAPLUS Full-text

DOCUMENT NUMBER: 63:52588

ORIGINAL REFERENCE NO.: 63:9526h,9527a-b

ENTRY DATE: Entered STN: 22 Apr 2001

TITLE: Study of ion-exchange extraction and regeneration of cyanide, copper, and zinc from alkali cyanide solutions and pulps

AUTHOR(S): Fridman, I. D.

SOURCE: Tr. Tsentr. Nauchn.-Issled. Gornorazved. Inst. (1964), (60), 50-66  
From: Ref. Zh., Met. A. Teoriya Met. Protssessov 1965, Abstr. No. 5A69.

DOCUMENT TYPE: Journal

LANGUAGE: Russian

CLASSIFICATION: 18 (Extractive Metallurgy)

ABSTRACT:

An ion-exchange method was studied on synthetic cyanide solns. in which the sources of free ions were chemical pure K cyanide, K thiocyanate, or Al thiocyanate. Expts. demonstrated the possibility of complete extraction of toxic cyanides from alkaline cyanide solns. and regeneration of cyanide, Cu, and Zn by an ion-

\*\*\*exchange\*\*\* method. In the presence of free cyanogen ions this method is not effective for the following reasons: the small anion-exchanger volume with respect to free CN- in the presence of complex cyanides of Cu, Zn, Ni, and Fe and the anions SO<sub>4</sub><sup>2-</sup>, CNS<sup>-</sup>, and CO<sub>3</sub><sup>2-</sup>; the neg. effect of complex ions of Fe and CNS<sup>-</sup> (owing to their irreversible adsorption) on adsorption and desorption of CN<sup>-</sup>; and the dependence of the CN<sup>-</sup> volume of the anion exchanger on the type of charge of the anion exchanger (CNS<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>, Cl<sup>-</sup>, CO<sub>3</sub><sup>2-</sup>). To increase the effectiveness of this method, free Zn ions can be bound in a Zn complex by adding Zn sulfate to the solution, followed by adsorption of Zn(CN)<sub>4</sub><sup>2-</sup> on the anion exchanger.

INDEX TERM: Thiocyanates  
(cyanide regeneration from, by ion exchange)

INDEX TERM: Ion exchange  
(in metallurgy, of Cu and Zn, in cyanide regeneration)

INDEX TERM: Cyanides  
(regeneration of, by ion exchange in Cu and Zn metallurgy)

INDEX TERM: 7440-66-6P, Zinc  
ROLE: PREP (Preparation)  
(as catalysts in polymerization of styrene; process metallurgy of, cyanide regeneration by ion exchange in)

INDEX TERM: 7440-50-8P, Copper  
ROLE: PREP (Preparation)  
(process metallurgy of, cyanide regeneration by ion exchange in)

IT 7440-50-8P, Copper  
RL: PREP (Preparation)  
(process metallurgy of, cyanide regeneration by ion exchange in)

RN 7440-50-8 HCAPLUS

CN Copper (CA INDEX NAME)

Cu

L52 ANSWER 23 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1964:51085 HCAPLUS Full-text

DOCUMENT NUMBER: 60:51085

ORIGINAL REFERENCE NO.: 60:8947b-d

ENTRY DATE: Entered STN: 22 Apr 2001

TITLE: Obtaining indium compounds from complex sulfide ores of nonferrous metals

INVENTOR(S): Mazacek, Jan

SOURCE: 2 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

CLASSIFICATION: 18 (Extractive Metallurgy)

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CS 108358		19630915	CS	



196202  
15

PRIORITY APPLN. INFO.:

CS

196202  
15

## PATENT CLASSIFICATION CODES:

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

## ABSTRACT:

A concentrate, containing 0.07% In, obtained by selective flotation from an ore containing Zn, Pb, Cu, Cd sulfides, and 0.009% In is roasted at 900-50° in a fluidized-bed furnace and the escaping SO<sub>2</sub> used to make H<sub>2</sub>SO<sub>4</sub>. The roasted material, containing 0.075% In, is leached with a solution containing 150 g. H<sub>2</sub>SO<sub>4</sub>/l. for 4 hrs. at 80-90° at a ratio of 1:10, the mixture filtered, and from the filtrate, containing 75 mg. In/l., practically all In, together with Cd, Cu, etc., is sepd . by double cementation with powdered Zn at 50°. The residual solution, containing <5.0 mg. In/l., is worked up to ZnSO<sub>4</sub> or electrolytic Zn. The cementation precipitate is dissolved in HCl, the insol. material filtered off, acidity adjusted to 5N with HCl, and the solution passed over a strongly basic anion exchanger. In is eluted with 0.1N HCl, precipitated with NH<sub>4</sub>OH, and the resulting In(OH)<sub>3</sub> calcined to In<sub>2</sub>O<sub>3</sub>. The overall yield is 70%. Alternatively, the separation of In on the ion-exchanger\*\*\* can be replaced by precipitation as phosphate.

INDEX TERM: Machining  
(electrolytic, sludge from, metal recovery from)

INDEX TERM: Anion exchange  
(in indium metallurgy from sulfate solns.)

INDEX TERM: Fluidized beds or systems  
(sulfide ore roasting in)

INDEX TERM: 7440-66-6, Zinc  
(cementation with, on Cd, Cu and In, from sulfate solns.)

INDEX TERM: 7440-43-9P, Cadmium 7440-50-8P, Copper  
ROLE: PREP (Preparation)  
(process metallurgy of, from sulfide ore roasting in fluidized bed, H<sub>2</sub>SO<sub>4</sub> leaching and Zn cementation)

INDEX TERM: 7440-74-6P, Indium  
ROLE: PREP (Preparation)  
(process metallurgy of, from sulfide ores by roasting in fluidized bed, H<sub>2</sub>SO<sub>4</sub> leaching and cementation with Zn)

INDEX TERM: 7446-09-5P, Sulfur dioxide  
ROLE: PREP (Preparation)  
(recovery of, from In concentrate roasting in fluidized beds)

L52 ANSWER 24 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1964:44027 HCAPLUS Full-text

DOCUMENT NUMBER: 60:44027

ORIGINAL REFERENCE NO.: 60:7705h,7706a

ENTRY DATE: Entered STN: 22 Apr 2001

TITLE: Highly pure zinc and cadmium compounds

INVENTOR(S): Lendvay, Odon

PATENT ASSIGNEE(S): Magyar Tudományos Akademia, Muszaki Fizikai  
Kutato Intezet

SOURCE: 6 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 CLASSIFICATION: 17 (Industrial Inorganic Chemicals)  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
----- HU 150728	---	---	----- HU	----- 196203 02
			<--	
PRIORITY APPLN. INFO.:			HU	196203 02
			<--	

## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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## ABSTRACT:

Purifications were accomplished by means of ion  
 \*\*\*exchange\*\*\* For example: ZnSO<sub>4</sub> was treated with H<sub>2</sub>O<sub>2</sub> in  
 slightly alkaline medium, excess H<sub>2</sub>O<sub>2</sub> was removed by boiling, the pH was  
 adjusted to neutral, and the solution passed (a) over ZnO.xH<sub>2</sub>O column,  
 previously activated with NaOH (com. ZnO, treated with 30% of a 3% NaOH  
 solution, and heated at 170° for 2 hrs.), and (b) over ZnO (treated  
 with 5% NaOH solution and heated at 1000°), and possibly (c) on a  
 third column similar to b. The solution was treated with H<sub>2</sub>S to precipitate ZnS of  
 spectroscopic purity. CdSO<sub>4</sub> was purified similarly, but with CdO,  
 previously treated with 5% KOH solution as above, or by heating CdO at  
 500°, followed by treating with 5% KOH solution at room temperature

INDEX TERM: Chlorides  
 (purification of fused)  
 INDEX TERM: 1314-98-3P, Zinc sulfide  
 ROLE: PREP (Preparation)  
 (manufacture from ZnSO<sub>4</sub>)  
 INDEX TERM: 10124-36-4P, Cadmium sulfate  
 ROLE: PREP (Preparation)  
 (purification by treatment with H<sub>2</sub>O<sub>2</sub> and  
 ion exchange)  
 INDEX TERM: 7733-02-0P, Zinc sulfate  
 ROLE: PREP (Preparation)  
 (purification of, by treatment with H<sub>2</sub>O<sub>2</sub>  
 and ion exchange)  
 IT 7733-02-0P, Zinc sulfate  
 RL: PREP (Preparation)  
 (purification of, by treatment with H<sub>2</sub>O<sub>2</sub> and  
 ion exchange)  
 RN 7733-02-0 HCAPLUS  
 CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

L52 ANSWER 25 OF 25 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1960:58276 HCAPLUS  
 DOCUMENT NUMBER: 54:58276  
 ORIGINAL REFERENCE NO.: 54:11338b-c  
 ENTRY DATE: Entered STN: 22 Apr 2001  
 TITLE: Purification of salt solutions by ion exchange  
 INVENTOR(S): Wolf, Max; Lenz, Ilse  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 CLASSIFICATION: 13 (Chemical Industry and Miscellaneous  
 Industrial Products)  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 9604		19520622	DD	

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## PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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## ABSTRACT:

Aqueous salt solns. can be purified by passing through an ion  
 \*\*\*exchanger\*\*\* which has been treated previously with a pure  
 solution of the material to be purified. Thus, the Fe content of  
 \*\*\*ZnSO<sub>4</sub>\*\*\* solns. can be brought down to 1/200 of the original by  
 treating the adsorbent, Wofatit F, previous to the exchange with 20% HCl,  
 distilled H<sub>2</sub>O, and 4N ZnSO<sub>4</sub> solution

INDEX TERM: Ion exchange  
 (in salt purification)  
 INDEX TERM: Salts  
 (purification of, by ion exchange)  
 INDEX TERM: 9049-25-6, Wofatit F  
 (iron removal from ZnSO<sub>4</sub> by)  
 INDEX TERM: 7733-02-0, Zinc sulfate  
 (iron removal from, by ion  
 exchange)  
 INDEX TERM: 7439-89-6, Iron  
 (removal of, from ZnSO<sub>4</sub> by ion  
 exchange)  
 IT 7733-02-0, Zinc sulfate  
 (iron removal from, by ion exchange)  
 RN 7733-02-0 HCAPLUS  
 CN Sulfuric acid, zinc salt (1:1) (CA INDEX NAME)



● Zn

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(FILE 'HOME' ENTERED AT 15:36:52 ON 24 OCT 2008)

FILE 'HCAPLUS' ENTERED AT 15:37:02 ON 24 OCT 2008

L1 1 SEA ABB=ON PLU=ON US20070048203/PN  
SEL RN

FILE 'REGISTRY' ENTERED AT 15:37:38 ON 24 OCT 2008

L2 4 SEA ABB=ON PLU=ON (1317-39-1/BI OR 16887-00-6/BI OR  
7440-50-8/BI OR 7733-02-0/BI)  
D SCA

L3 1 SEA ABB=ON PLU=ON "ZINC SULFATE"/CN  
D SCA

L4 1 SEA ABB=ON PLU=ON COPPER/CN

FILE 'HCAPLUS' ENTERED AT 15:44:31 ON 24 OCT 2008

L5 16329 SEA ABB=ON PLU=ON L3  
L6 QUE ABB=ON PLU=ON ION(2A)EXCHANG?  
L7 577620 SEA ABB=ON PLU=ON L4  
L8 QUE ABB=ON PLU=ON CU OR COPPER  
L9 QUE ABB=ON PLU=ON (ZN OR ZINC) (A) (SULFATE OR SULPHATE)  
OR ZNSO4  
L10 451 SEA ABB=ON PLU=ON (L5 OR L9) AND L6  
L11 300 SEA ABB=ON PLU=ON (L3 OR L9) (L) L6  
L12 59 SEA ABB=ON PLU=ON L11 AND (L7 OR L8)

FILE 'REGISTRY' ENTERED AT 15:54:14 ON 24 OCT 2008

L13 1 SEA ABB=ON PLU=ON CHLORIDE/CN

FILE 'HCAPLUS' ENTERED AT 15:54:29 ON 24 OCT 2008

L14 71340 SEA ABB=ON PLU=ON L13  
L15 QUE ABB=ON PLU=ON CHLORIDE OR CL  
L16 17 SEA ABB=ON PLU=ON L12 AND (L14 OR L15)  
L17 QUE ABB=ON PLU=ON 54/SC, SX  
L18 3 SEA ABB=ON PLU=ON L16 AND L17  
L19 QUE ABB=ON PLU=ON REMOV? OR SEPARAT?  
L20 60111 SEA ABB=ON PLU=ON L19(3A) (L8 OR L15)  
L21 12 SEA ABB=ON PLU=ON L20 AND L11  
L22 4 SEA ABB=ON PLU=ON L21 AND L17  
D SCA  
L23 QUE ABB=ON PLU=ON (TREAT? OR PRETREAT? OR PROCESS? OR  
PREPROCESS?)  
L24 18394 SEA ABB=ON PLU=ON L23(3A) L6  
L25 57 SEA ABB=ON PLU=ON L24 AND (L5 OR L9)  
L26 47 SEA ABB=ON PLU=ON L25 AND L11  
D KWIC 1-3

L27 10522 SEA ABB=ON PLU=ON (TREAT? OR PRETREAT?) (3A) L6  
 L28 33 SEA ABB=ON PLU=ON L26 AND L27  
 D KWIC 1-3  
 L29 7 SEA ABB=ON PLU=ON L26 AND L17  
 L30 5 SEA ABB=ON PLU=ON L28 AND L29  
 L31 QUE ABB=ON PLU=ON WASTEWATER (2A) TREATMENT  
 L32 4 SEA ABB=ON PLU=ON L29 NOT L31  
 L33 2 SEA ABB=ON PLU=ON L25 AND L20  
 L34 20 SEA ABB=ON PLU=ON L28 NOT L31  
 D KWIC 1-3  
 L35 QUE ABB=ON PLU=ON EXTRACT?/SC, SX  
 L36 4 SEA ABB=ON PLU=ON L16 AND L35  
 L37 7 SEA ABB=ON PLU=ON L26 AND L35  
 L38 5 SEA ABB=ON PLU=ON L21 AND L35  
 L39 9 SEA ABB=ON PLU=ON ((L36 OR L37 OR L38)) NOT L31  
 L40 26 SEA ABB=ON PLU=ON (L39 OR L34) AND (PY<=2004 OR  
 PRY<=2004 OR AY<=2004)

FILE 'WPIX' ENTERED AT 16:36:10 ON 24 OCT 2008

E US20070048203/PN  
 L41 1 SEA ABB=ON PLU=ON US20070048203/PN  
 L42 3752 SEA ABB=ON PLU=ON (TREAT? OR PRETREAT?) (3A) L6  
 L43 10 SEA ABB=ON PLU=ON L42 AND L9  
 L44 0 SEA ABB=ON PLU=ON L41 AND L43  
 D IFULL L41  
 D KWIC 1-2  
 D KWIC L43 1-2  
 L45 QUE ABB=ON PLU=ON REMOV? OR SEPARAT?  
 L46 6 SEA ABB=ON PLU=ON L43 AND L45  
 D KWIC 1-2  
 L47 15854 SEA ABB=ON PLU=ON L19 (3A) (L8 OR L15)  
 L48 109 SEA ABB=ON PLU=ON L47 AND L9  
 L49 9 SEA ABB=ON PLU=ON L48 AND L6  
 L50 14 SEA ABB=ON PLU=ON (L46 OR L49) AND (PY<=2004 OR  
 PRY<=2004 OR AY<=2004)  
 SEL L50 PN,AP

FILE 'HCAPLUS' ENTERED AT 16:41:42 ON 24 OCT 2008

L51 14 SEA ABB=ON PLU=ON (W01997-US13412/AP OR W02004-AT297/AP  
 L52 25 SEA ABB=ON PLU=ON L40 NOT L51

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